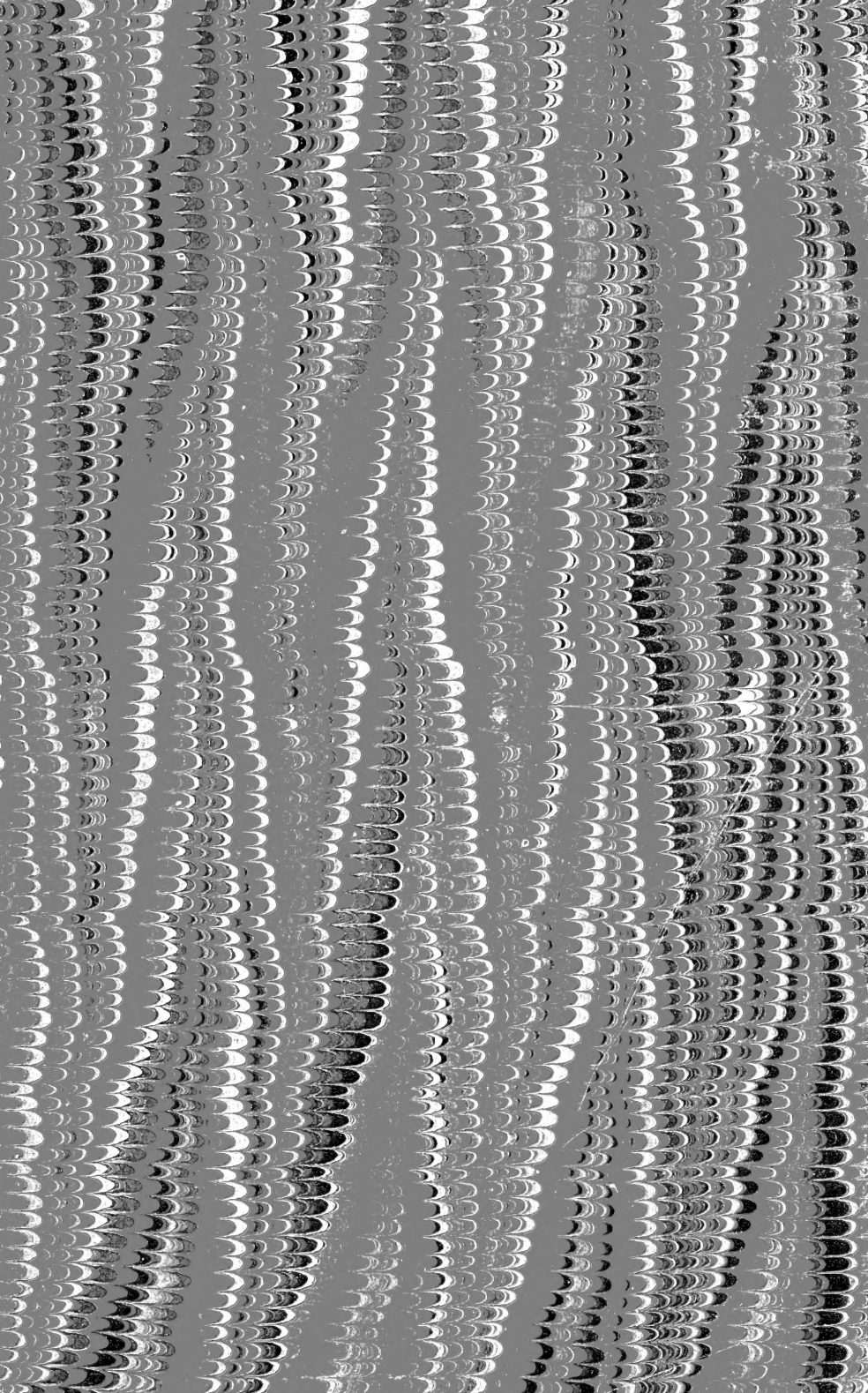


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TOBACCO.

FROM THE SEED TO THE WAREHOUSE.

A PRACTICAL HAND BOOK

FOR THE

TOBACCO PLANTER,

WITH

HISTORICAL AND MEDICINAL FACTS FOR
THE CONSUMER.

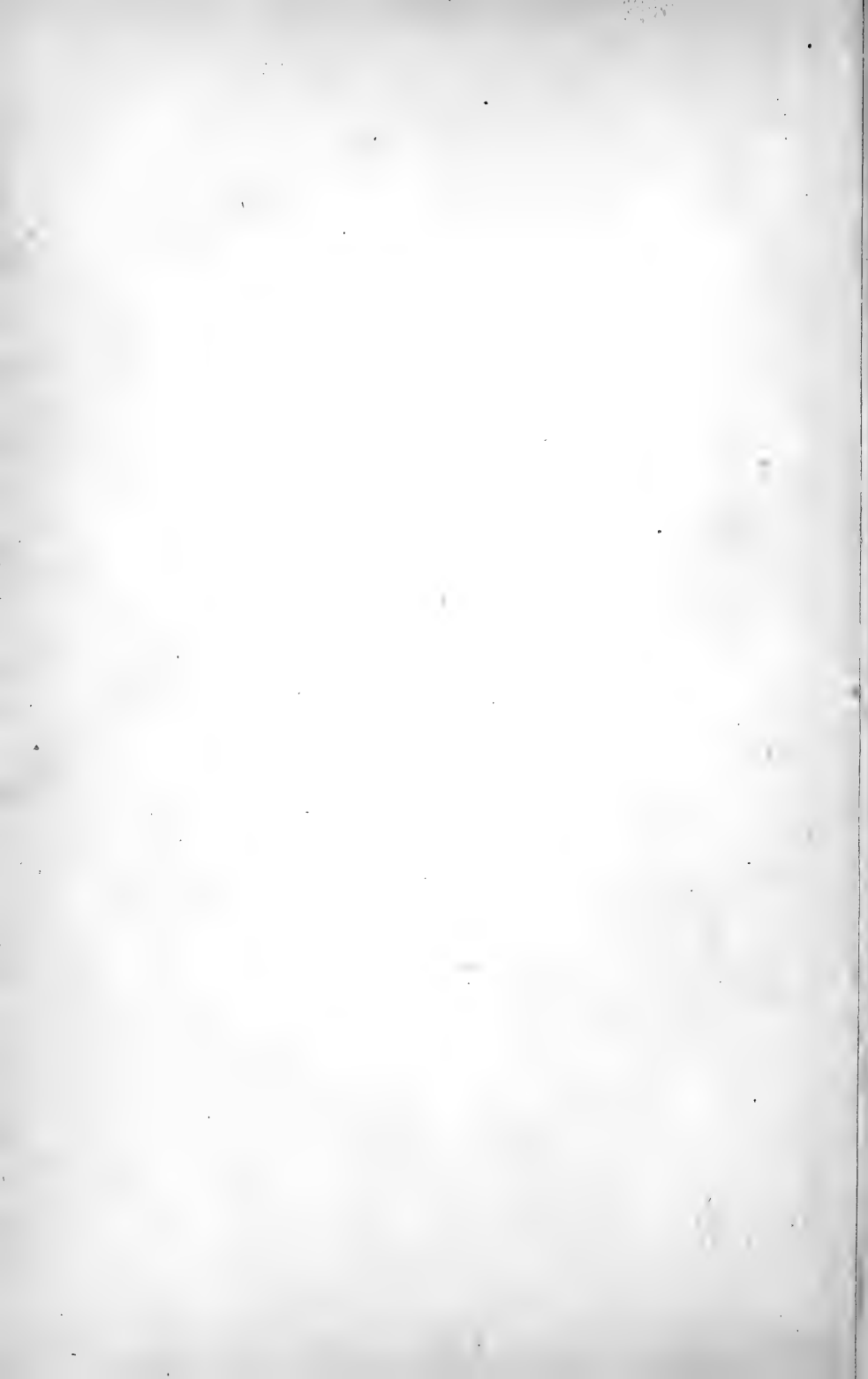
BY B. RUSH SENSENEY, M. D.

CHAMBERSBURG, PA.:

JOHN M. POMEROY, PUBLISHER.

1878.

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TOBACCO.

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A PRACTICAL HAND BOOK.

FOR THE

TOBACCO PLANTER,

EMBRACING THE AUTHOR'S OWN PRACTICAL EXPERIENCE IN CULTIVATING AND CURING THE WEED,

AND THE

METHODS PRACTICED IN VIRGINIA, KENTUCKY, MARYLAND, PENNSYLVANIA, CONNECTICUT, MISSOURI, NEW YORK, NORTH CAROLINA, OHIO, THE ISLAND OF CUBA AND OTHER DISTRICTS WHERE THE PLANT IS GROWN.

THE CULTIVATION, CURING AND HANDLING OF TOBACCO.

BY B. RUSH SENSENEY, M. D.

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INTRODUCTION.

I present this work to the public making no claim for it as a literary effort, but simply as embodying my own practical experience in the cultivation of Tobacco, coupled with observations and useful facts obtained from successful growers of the plant.

The cultivation of the weed in the United States, and notably in Pennsylvania, is attaining such immense proportions that a small hand book for cultivator's use, is a present necessity. This want I have endeavored to fill. My observations have, in the main, been confined to the States of Pennsylvania, Virginia, Maryland, Kentucky and Connecticut; but the information embodied in this work will be found adaptable to any State or Territory where the plant can be grown.

I have presented facts and experiences as they were found among men who were most successful in winning wealth by means of the weed—by growing it, and curing it, and selling it. I leave all theorizing and hypothesis to others. I endeavor to show where, when and how mistakes are made and how to guard against them, and most particularly have I endeavored to make it plain to the poor man, he who owns but a single acre or two of land, how he may with energy and industry, lift himself from poverty to comfort, if not affluence.

Chambersburg, Pa.

THE AUTHOR.

The late Dr. Chapman, a most brilliant and elegant writer, penned the following tribute to "the weed": "The history of this plant is interesting. The product of a little spot, the island of Tobago, it has engaged the attention of the sordid and enchanted the witty and wise. Everywhere its powers are felt and its fascinations acknowledged. The Arab cultivates it in his burning desert. The Laplander risks his life to procure it amidst his snows. No privation is too severe to the seaman or the soldier while he commands this luxury. Even polished man, with all the comforts of elegant society, cannot dispense with his cigar."

HISTOLOGY.

Tobacco—"Genus Nicotiana."

CHAPTER I.

The derivation of the name TOBACCO is in dispute. Some historians ascribe it to the Indian Tabacos, a pipe. This name was given by the natives of the Carribee Islands to the pipe in which they smoked the leaves of the plant. Others trace it to one of the Provinces or States of Mexico, TABASCO, whilst still others claim its derivation from Tobasco an Island in the gulf of Florida.

It would appear that the most direct and indisputable testimony is that which claims for it derivation from "TABACOS," the name which the Spaniards heard the natives use when speaking of the pipe in which they made use of the fragrant plant.

The genus name, NICOTIANA, is said to have been derived from Jean Nicot, an ambassador from France to Portugal, who first in 1560 conveyed a ship load of the weed from Lisbon to France. Nicot, hence Nicot-iana.

The knowledge of Tobacco and its uses was unknown to Europeans until after the discovery of America by Columbus. When that adventurer and his followers landed at an island which he named Hispaniola, in honor of the country which had encouraged his great enterprise, he found the natives smoking a plant, the perfume of which was fragrant and grateful, and they afterwards learned that from the

earliest ages, it had been the custom of the natives to offer it in their sacrifices to the divinity, under the belief that its aroma was more grateful to him than any other incense. The priests also of these aborigines, before declaring their oracles, were in the habit of intoxicating themselves by its means; and the medicine men employed it in divining the nature of maladies. Thus, then, the Spaniards acquired first a knowledge of its uses and virtues, and on their return home introduced it into Spain and Portugal; and it was, while ambassador of France to the Court of Lisbon, that Jean Nicot, as before I have told, became acquainted with it and its use from a Flemish merchant, who had formed one of the expedition to America and carried a load from Spain to France. Jean Nicot presented it to the grand prior and to the queen, Catharine de Medici, whence it obtained the names then in vogue of "*l' herbe du grand prieur*" and "*l' herbe de la reine*," which eventually were changed to "*l' herbe Nicotiana*" or the Nicotian weed, which it retains to this day both poetically and in a botanical sense.

The followers of Columbus noticed that the natives puffed smoke from their mouths and noses. They burned the dried leaves of the plants in small clay pipes into which they placed one end of a long hollow reed the other end of which was placed in the mouth, or as was often the case, the tube was forked at one end and then the forked ends were inserted into the nostrils, and thus was the smoke inhaled from the burning weed. On the discovery of other portions of America it was found that the plant was generally used by the natives of both the Northern and Southern Continents and the islands of the sea, and the Gulf of Mexico. One writer speaks of its being used by the natives of Peru as a medicine, in the form of snuff. The Aztecs of Mexico used pipes of a varnished wood, richly inlaid with gold and silver, and mingled with the intoxicating tobacco the liquid amber and various aromatic herbs.

"Saghagun," in his "History of New Spain," speaks of them as using the leaves rolled into cigars, which they ignited and smoked in tubes of tortoise shell or silver. "Roman Pane," a friar who accompanied Columbus noticed that the natives used the dried leaves, pulverized into a snuff, as a purgative medicine, snuffing it up through hollow canes.

Samples of it were taken to England by Sir Francis Drake, and the use of it was there made fashionable by Sir Walter Raleigh, and others, who had acquired a taste for it in Virginia, where it held an important place in all Indian ceremonies. Among the Indian tribes of that and other sections of the continent the usual mode of use was by hollow canes and pipes made of wood, and decorated with copper and green stones. In order to deprive it of its acidity, some were wont to pass the smoke through bulbs, filled with water in which aromatic and medicinal herbs had been infused.

Thus it would seem that the forms in which it is now used by the inhabitants of civilized countries were known and practiced by all the ancient American races. Its use may be still further traced back to more remote periods of time, by pipes found in ancient mounds and monuments of races of people who inhabited the continent before the Indian tribes. These pipes, some of them most beautifully carved and elaborately ornamented with gold and silver, are found in exhuming Aztec graves and sepulchres.

Some historians, however, claim for Tobacco a greater antiquity than that ascribed to it in the discovery of America. It has been contended by some writers of eminence, that the Tobacco plant and its employment as a narcotic, are indigenous, also, to some parts of Europe and Asia. "Leibant" thinks it was known in Europe many years before the discovery of America, and asserts that many plants had been found in the Ardennes; but "Maquenius" claims its origin as American, and attempts to allay Leibant's theory

by suggesting that the seeds had been carried by winds from one continent to the other. "Pallas" says that among the Chinese and among the Mongol tribes, who had the most intercourse with them, the custom is so general with them of smoking, so frequent and has become so indispensable a luxury; the pipes, he says, affixed to their belts with a purse for tobacco, so indispensable an article of dress; the form of the pipes from which the Dutch seem to have taken the model of theirs, so original; and then the preparation of the yellow leaves, which are merely rubbed to pieces, and then put into the pipe, so peculiar, that they could not possibly have derived this from America by way of Europe, especially as India, where the practice of smoking is not so general, intervenes between Persia and China. "Meyen" also states that, the consumption of Tobacco in the Chinese empire, is of immense extent, and the practice seems to be of great antiquity, for on very old sculptures I have noticed, the very same style of Tobacco pipes now in use. This writer, however, seems to have lost sight of the fact that the Chinese have been opium smokers from a very remote period, and it may be that these pipes were used for that purpose, inasmuch as the pipes now in use by that most peculiar people, are ordinarily not unlike those used by them in smoking the Tobacco leaf, hence I take it that his argument possesses but little significance as against the trans-Atlantic theory. It is, however, very singular that, in a country so impervious to foreign influence and customs as China, this habit should obtain to such an extent, for according to another writer "the practice is so uniform, that every female from the age of eight or nine, wears a small silken pocket to hold tobacco and a pipe." But whether a native of the old world or of the new, the culture of Tobacco has spread and its consumption increased in every quarter of the globe, in a greater proportion than any other article of food or luxury.

Among all nations—in every land and every clime, in all

classes is it to be found, in the gilded palaces of the King, the Sultan or Emperor, to the lowly peasants hut, from the most refined to the most degraded and ignorant, lulling to ease the pampered millionaire, and solacing the heart of the hungry gamin, the poor street waif, it perfumes the parlors of Fifth Avenue and Rotten Row, and floats upon the breeze at the break of day or "dewy eve," as the laborer wends his way to work or to his home; and in spite of legal enactments, of papal bulls, regal counterblasts, imperial edicts, religious crusades and feminine protests, it still flourishes; every day adding to its consumption, every day finding new adherents and friends, and adding almost daily some new district to its production.

It has its opponents, but it numbers its friends by hundreds of millions. Is it a poison?—then is the poison as sweet as honey. Does it act injuriously upon the system and shorten life?—out upon such logic, cry the multitude, and still puff on. Is it extravagant and wasteful, even to sinfulness?—"we will eat less bread," they cry, and still puff on and on, and away goes the national debt, principal and interest, in fire and smoke.

CHAPTER II.

CHEMICAL COMPOSITION AND THERAPEUTIC ACTION.

The great German Chemists Posselt and Reinmann have made the best and perhaps the most accurate chemical analysis of Tobacco known. I give it here in toto :

Nicotine	.	.	.	.	.	.	.	.	0.060
Concrete Volatile Oil	.	.	.	.	.	.	.	.	0.010
Bitter Extractive	.	.	.	.	.	.	.	.	2.870
Gum with Malate of lime	.	.	.	.	.	.	.	.	1.740
Chlorophyl	.	.	.	.	.	.	.	.	0.267
Albumen and Gluten	.	.	.	.	.	.	.	.	1.308

Malic Acid	0.510
Lignine and a trace of starch	4.969
Salts (sulphate, nitrate and malate of potash, chloride of potassium, phosphate and malate of lime and malate of ammonia)	0.734
Silica	0.084
Water	88.280
Total	100.836

The active principle residing in the plant is Nicotine or Nicotia and Nicotianine. The former was first separated from the plant in a pure state by Messrs. Henry and Boutron, that previously obtained by other chemists being an aqueous solution of the alkaline principle in connection with ammonia. The strongest Virginia and Kentucky tobaccos contain from 6 to 7 per cent of it whilst some of the milder varieties used for cigars contain only about 2 per cent.

Nicotianine is the concrete volatile oil of tobacco, or tobacco camphor, obtained by distillation of its leaves. Only about 11 grains can be obtained by distillation of six pounds of the leaves. It is of a fatty nature, having a smell like Tobacco smoke, and a bitter acrid taste. It is insoluble in water and dilute acids, is volatilized by heat and alcohol, ether and solution of potash are its solvents.

An empyreumatic oil may be obtained by distillation conducted at a temperature of 212° and this contains nicotia which is a most deadly poison. One drop of this poison placed upon the tongue of a dog will cause him to expire in convulsions in a very few minutes. It is this poison which often collects in old pipes and causes the sore mouth or sore tongue which is not uncommon among smokers. It is this active poisonous principle which when inhaled from a very old pipe, often causes faintness, giddiness and sometimes severe vertigo of smokers. It is simply tobacco poisoning and is due to nicotia or nicotine.

This oil which cannot be distinguished from that of fox glove, has been detected in tobacco smoke together with nicotianine, nicotia, salts of ammonia and other volatile

products. The ash of tobacco leaves consists of about 1-6 to 1-5 of the entire weight and is chiefly carbonates of lime and magnesia, chloride of potassium and sulphate of potash.

The medicinal effects of tobacco upon the system are very marked, whether taken internally or as an external application. If administered internally as a powder, in the shape of snuff, in small quantities, or taken as it is ordinarily used, as chewing or smoking tobacco, it acts as a sedative narcotic, calming mental unrest and bodily excitement, and producing a state of languor or repose, most seductive and inviting to those accustomed to its use. Taken in larger quantities, or with those unaccustomed to its use, it acts as a poison, producing vertigo, or giddiness, nausea, vomiting and purging with great prostration. As the nausea continues with severe retching, the skin becomes cold and clammy, the muscles relaxed, the pulse feeble, and if the dose has been a large one, fainting, convulsions, and death may ensue. It has great power in causing relaxation of the muscular system, even it is thought to a greater degree than digitalis, and on this account is often taken advantage of in surgical treatment and operations. Dr. Physick used it in the case of a patient with a dislocated jaw. The man was unaccustomed to the use of tobacco, and Physick made him smoke. He soon had his patient so deathly sick from its effects that the muscles of the affected part were entirely relaxed, and the dislocation was reduced with ease. It is also used in the form of infusions and cataplasms, to relieve various spasmodic conditions. The inhalation of tobacco smoke is much resorted to in asthma. It is also recommended in articular gout, rheumatism and neuralgia; toothache may often be relieved by smoking a cigar.

In some varieties of cutaneous affections it has been resorted to with success. The application of an infusion of the leaves or the powder, as for instance a snuff poultice, to surfaces deprived of their skin is not devoid of danger however, and great care should be taken in its administra-

tion. It has been followed by fatal effects when so administered, even by inhalation of the smoke, death has been produced. The great nausea produced by this drug has suggested its use as an emetic, but its administration is not justifiable except perhaps in extreme cases, such as sudden poisoning, or where no other emetics are at hand.

A great diversity of opinion exists among medical men as to whether the use of tobacco is beneficial or hurtful to the system. Even since its introduction into general use it has been condemned most earnestly by many eminent men for its supposed generally injurious qualities. Its use, nevertheless, has been constantly increasing throughout the whole world, in every land and climate, hot, cold, or temperate, and millions feed upon it daily, suffering extremely if deprived of it for a time. Its distribution so generally among men of all classes and nationalities would seem to imply that the plant exercises some important influence upon the human system. It does not appear to affect the duration of human life except when used to great excess.

CHAPTER III.

A TOBACCO CHAT—TO THE POOR MAN.

Before entering upon the subject proper of this treatise—the cultivation and curing of Tobacco—I will say a few words to those who for the first time contemplate engaging in the cultivation of this plant. In the first place do you own a piece of land, say one, two or three acres, more or less? If you do not, can you lease a tract of that number of acres at, say \$15 or \$20 per acre, such land as will hereafter be shown containing the necessary elements for successfully growing the weed? Are you a married man and have you several half-grown children, all of which are nec-

essary adjuncts to the work. Have you a horse, plough and cultivator, by cultivator I mean a single or double shovel plow. I am addressing myself now to the poor man, the cropper or tenant of very moderate means. Do you keep a cow? With one or two horses and a cow, quite a large amount of good fertilizer can be produced from season to season. The soil required for cultivating tobacco is of no small importance as regards its selection, as I shall show more in detail in another chapter. If you own a nice dry and warm tract of sandy, loamy soil, rather rolling, not too flat and not so hilly as to wash by excessive rains, either old land or that which has been recently cleared and worked for a season or two, you may make your first attempt at raising a crop of tobacco. If you do not own such a piece of land it will pay you to rent a piece, and pay from \$15 to \$30, or in case of its being exceptionally fine land \$50 per acre for it as lessee.

You will encounter difficulties and will often meet with obstacles calculated to discourage, but a good crop will pay for all of these and soon dissipate your troubles. You will meet with rains when there has been too much of it, hot sun when you want rain or cloudy weather on your young and tender plants. When you set out your plants it may be just at the beginning of a week or two of dry hot weather. Then like cabbage plants you will have to water, water, water, and in spite of all, see numbers of your plants pine away and die. You will have to replant and replant again. You will find cut worms ravaging the young plants, and in the season for them the tobacco worm will come down on you like the frogs and locusts in the land of Egypt. You must fight them. Raise turkeys, turn them into your patch, they will aid you well and nobly. Here too, the half-grown children will be found to be of great service, with their willing feet, pliant backs and nimble fingers they skip along, bend down, examine, pick, kill and pass on to the next, and few of the destructive and ugly creatures escape their acute optics. The

mother is attending to home duties, the children are with you in the patch daily.

They look after the worms, you after the cultivating, hoeing, weeding, topping and suckering the plants. All this I will tell you fully in another chapter. Then as the time draws on you will soon begin to cut and house your crop. To do this you must have prepared for yourself a Tobacco knife, four or five hundred plastering lath and a few roofing lath. At each end of your field or patch make a small platform for piling on the green plants which you intend impaling on the lath.

Have a long rail or two fastened to posts, about five feet from the ground, and just near enough to a fence so as to allow of your hanging up each lath when filled with plants.

You will have to utilize all the spare room in the attic of your house, in your stable or the eaves of your barn, or under the roof of your wagon shed. All this prepare before hand, so that you have store room to hang your laths of Tobacco where it can cure. All these seemingly trivial matters I mention here to the poor man, the beginner, so that when he has raised a crop he may not lose it by finding no place to house it. Look out for frost, your crop may be late and you be taking advantage of every possible day to give it larger growth. See to it that old "Jack" does not catch you napping, for if he does, your whole crop may be ruined in a night. One energetic and industrious man, may handle successfully and well, two acres of tobacco. This, if of fine quality, may yield him from \$250 to \$400 per acre, if the weed be commanding a fair price in market. In the county of Lancaster, in the State of Pennsylvania, this is not by any means an uncommon yield, indeed I am informed that figures much beyond these have been obtained from a single acre.

Let the poor man try it.

CHAPTER IV.

TOBACCO—ITS VARIETIES.

It is of American Tobacco I mean to treat, hence I shall touch but lightly upon other and foreign kinds. Localities christen the different brands of tobaccos and cigars, the plant, *de facto*, remaining much the same in both appearance, and its constituents differing in one place, because of a finer leaf texture, in another because of its large size and fine color, in another because of its fine aroma, and consequent superiority for smoking purposes, and still another section claims great superiority for its plant for chewing purposes.

Perhaps the oldest and best known variety, from which has sprung most of our American varieties, is the *Nicotiana Tabacum*, or Virginia tobacco, or Kentucky or Pennsylvania tobacco, for it means one and the same thing, and was originally derived from one common seed. The best tobacco for making cigars is grown in the western end of the Island of Cuba, and is known as the “*Vuelta Abajo*,” the plant most in vogue there being the “*Nicotium repanda*.” That which is raised in a section of country lying eastward of the city of Havanna is called *Vuelta Arriba*, and is rather of an inferior quality. The most noted or justly celebrated plantation, or *Vega* as it is termed, is situated near the town of Santiago de Cuba and is called *Yara*. Thus we often hear of “*Yara*” cigars and “*Yara*” tobacco. The *Vuelta Abajo* is divided into five classes: 1st. *Calidad* or *Libra* noted for its good color, flavor, elasticity, and perfection of the leaves, rendering it exceedingly desirable for wrappers for cigars.

No. 2. *Ynjuriado Principal* or *Firsts*, which has less flavor and is usually of a lighter color; this also is suitable for wrappers. No. 3. *Segundas* or *seconds*, a shade poorer in every respect, but good for fillings and inferior

wrappers. No. 4. TERCEIRAS or thirds, which are generally employed for fillings. No. 5. QUARTAS or fourths, which are also employed for fillings.

The choicest tobacco is that grown on the banks of rivers which are periodically overflowed.

They are called "Lo Rio," "Rio Hondo" and "Pinar del Rio," and the tobacco is distinguished from all others by a fine sand, which is found in the creases of the leaves. The island of Trinidad also produces a very superior article of like kind. In Mexico a large quantity is raised, but entirely for home consumption, its export being forbidden.

The tobacco used for manufacturing the manilla cheroots is the produce of the island of Luzon, and is considered nearly equal to that raised in Cuba.

"KADOE."

A very superior tobacco is raised in the province of Kadoe, in the island of Java, where it is grown in a naturally rich soil, alternately with rice, and without manure.

LATAKIA.

In western Asia that grown at Latakia in Syria, and at Shiraz in Persia, are most highly esteemed and are the famed Oriental brands.

"DUTCH."

In the province of Gelderland in Holland, they produce from 2,000,000 to 3,000,000 pounds per annum, the greater part of which is disposed of to the French government, the balance going to Cuba, and even coming to our own shores. It is considered a superior tobacco in some respects.

"CUBAN CIGARS."

As the best tobacco is grown in Cuba, so also the best cigars are made there.

Many attempts have been made in transplanting the seed of the Spanish tobacco to various parts of the world, but these experiments have met with but indifferent success. I myself planted the seed for several seasons and produced a leaf, larger than that of the native plant, and of very fine flavor and general good quality. In quantity, of yield per acre, it would not produce one-half the amount as that produced from Connecticut or Virginia seed, and in order to preserve the quality it is necessary to renew the seed from Cuba every year, as after one or two seasons it loses its original odor and flavor.

Although cigars are of very ancient origin in the West Indies, they were not generally known in Europe until the nineteenth century.

In fact, of all the old works up to the year 1800, on gastronomy and the pleasures of the table, I know of none which mentions this now almost indispensable luxury and adjunct of a good dinner. Cigars are now regarded as one of the "rites of hospitality" in good society, and he is a barbarian who fails to avail himself of the delights attending "la fragrant."

In Cuba for many years the manufacture of cigars was a monopoly, confined to a favored few. Now, however, it is not so. One firm, the house of "Cabananas," has for long years stood at the head of the trade and have attached their names to a brand of cigars "Cabananas" which have attained a just and world wide celebrity.

Any connoisseur of the weed will readily detect the flavor of a "Cabananas," and as a brand they are deservedly popular.

They command high prices, in some cases as much as two hundred dollars per thousand in gold in Havanna, while the same quality made by other manufacturers would command but one hundred and fifty dollars per thousand in gold.

AMERICAN HAVANNAS.

Great skill has been attained in the American factories in manufacturing cigars, so much so that it is very hard to determine between the genuine and the spurious article, excepting by trial, and even then in some cases, the nicest and most cultivated taste fails to detect the difference. Many persons engaged in the business import tobacco of fine quality from Cuba, employ the Connecticut or Pennsylvania wrapper, and produce a cigar equal in appearance to the very finest made in Cuba.

GERMAN CIGARS.

In Bremen and Hamburg, immense numbers of cigars are made from very inferior tobacco and shipped to every point of the habitable globe at very low prices. The city of Bremen, which was among the first to adopt this new branch of industry, has now become one of the first markets of the world, for the sale of cigars, over ten thousand persons being employed there in their manufacture, and the exports exceeding 500,000,000, worth over \$3,000,000, and most vile and execrable they are, exceeding even "M'Dowell's Stogies," or the "Wheeling Cheroot."

The consumption of cigars extends all over the globe and is increasing yearly at a wonderful ratio. According to a calculation made by the American Consul at Havanna and embodied in his report made to our Secretary of State, it is computed that in the Island of Cuba alone 1,460,000,000, or 10 a day for each person are annually consumed by the inhabitants and residents.

TOBACCO REVENUE OF FRANCE.

In France the consumption of tobacco and cigars is one of the principal sources of revenue.

As early as 1674, a monopoly of the trade was given to Jean Breton for six years, he paying to the government

700,000 francs. In 1720, the Indian Company paid for the privilege, 1,500,000 francs, and in 1771, the price was increased to 25,000,000 francs. In 1856, the revenue derived by the government, which had then assumed the monopoly, was 164,000,000 francs. Even on these enormous figures, since that time the increase has been so great that, when France was called upon to pay her indemnity of 3,000,000,000 francs to the Prussians, the bankers, Rothschild's offered to advance the money, if France would yield them the revenue on the weed. France did not accept.

The revenue to our own government from this source is something stupendous to contemplate, and will be referred to in another chapter.

OTHER VARIETIES.

There are many other varieties, mostly foreign grown, some of which I will barely mention. We have the Tobaccos of Turkey, of many kinds, taking their names from districts in which they are produced.

Egyptian and Syrian Tobaccos, African and Indian Tobaccos, all lightly colored and fragrant, much resembling that produced in Turkey. It is mostly utilized and consumed by the Orientals themselves in their pipes or Chibouques, is mild and much inferior for general purposes, to that grown in the United States. Comparatively little is exported from those countries. China and Japan raise quite large quantities which also is consumed by their own people. In the different Kingdoms and Principalities of Europe but little tobacco is ^{cultivated} consumed. The trade is with all a government monopoly, hence the inhabitants in some sections are prohibited raising it, because of interference with government revenues. Mexico and the Central and South American republics, do not cultivate the weed largely, except perhaps Brazil, and what they raise finds consumers at home.

The United States is par excellence the tobacco growing region for the world, and yet, with all its hundreds of millions of pounds produced, and its millions of revenue, the area planted is most insignificant.

The statistics for 1875, give but 559,049 acres of land, in all the States and Territories, planted in tobacco, or about forty townships, making about two ordinary sized counties, as the gross area of this country, supplying the world with the weed. How easy then it would seemingly be, with our great wealth of arable land, adapted to its cultivation, to overstock the market, and render it, as a commodity, a non-paying drug.

This would seem so at first glance and yet, the cultivation of the plant has ever been, and is yet, subject to so many vicissitudes that such a state of affairs rarely happens and is not likely soon to ensue.

In alluding to other varieties of tobacco, I shall confine myself to that produced in the different States, for it is of these chiefly which I will treat—their culture and handling. Kentucky tobacco is known and celebrated like that of the old mother State, Virginia, wherever the weed is consumed. As a producer, Kentucky takes precedence of all, and in quality, for its particular uses, is surpassed by none.

KENTUCKY—1875—130,000,000 POUNDS.

Its varieties are almost as numerous, nominally, as its counties and townships, each claiming some superiority either by reason of excellence in cultivation, superior adaptability of soil to its growth, in chemical constituents, and climacteric influences, new, improved and superior modes of curing and handling, or the reputed high grades and commercial superiority of its manufactured product.

Thus in Christian, Trigg, Todd and Logan counties, a brand is grown and manufactured, known to the trade, as the "Clarksville" district, which is largely exported to Ger-

many, Austria and the north of Europe, also to Mexico and the coast of Africa. Another variety is the "White Burley" and is largely grown in Bracken, Fleming, Pendleton, Grant, Shelby, Trimble, Kenton and other counties. Another is the "Little Frederick," chiefly grown in Clinton county. Others are the "Pryor" and "Long Green" varieties, grown in Hart, Muhlenburg and Adair counties, chiefly a chewing grade. A celebrated leaf is grown in Logan county, which is a favorite with, and largely purchased for wrappers by French and English manufacturers.

VIRGINIA—1875—57,000,000 POUNDS.

This State, as a tobacco producer, was, until 1860 the foremost in amount produced. During the war Kentucky went to the front and has since retained preeminence over all in her gross yield. To-day Virginia stands second as producer.

The qualities of her tobacco are so various as to adapt it to all purposes, chewing, cigars, smoking brands and snuff, but, her tobaccos are now chiefly celebrated for smoking or pipe purposes, and the various popular chewing brands. In this respect the two States, Kentucky and Virginia nearly resemble each other, and have each attained world wide celebrity for the excellence of their brands.

The "Long Green" the "Blue Pryor" and "Big Pryor" are varieties popular and grown in most of her counties: Also the "Gooch" "White Stem" "Yellow Pryor" "Big Oronoko" and "Little Oronoko" varieties.

MISSOURI—1875—40,000,000 POUNDS.

A very large area was planted in this State in 1875, and the yield placed her for the time, third in production. The varieties are much the same as those of Kentucky, and her leaf stands well for both chewing and smoking purposes.

The mode of cultivation and curing is much the same as that practiced in Kentucky, which will be noted fully in the appropriate chapters.

Tennessee—1875,	35,000,000 pounds.
Maryland—1875,	22,000,000 pounds.
Pennsylvania—1875,	16,000,000 pounds.
North Carolina—1875,	14,750,000 pounds.
Ohio—1875,	13,500,000 pounds.
Indiana—1875,	12,750,000 pounds.
Connecticut—1875,	9,900,000 pounds.
Massachusetts—1875	8,500,000 pounds.
Illinois—1875,	8,000,000 pounds.

In these, the foremost producing States, I have given the yield of tobacco according to the last census, that of 1875. In some of them there has since been a very large increase both in acreage and yield: for instance the State of Pennsylvania is set down for 1876 at about 35,000,000 pounds, 30,000,000 pounds of which was raised in Lancaster county.

In the several States last enumerated, the varieties of tobacco are numerous and noted either as to excellence for chewing purposes, as wrappers, smoking, fine cut or cigars. To the most important of them I will hereafter refer in detail.

I shall do this particularly with reference to that grown in Connecticut, Pennsylvania, Maryland, Ohio, Virginia and Kentucky, because they are to day the leading producers, and their several products command most attention and highest prices from buyers, both in this country and abroad.

CHAPTER V.

CLIMATE AND SOIL.

All climates and soils are not adapted to the cultivation of tobacco. It cannot be grown in the short and frosty summers of the far north, nor are the blazing rays of a tropi-

cal sun conducive to its successful culture. A medium between the two seems to meet all the requisites in producing an article of standard excellence. In the United States the section of country lying between forty-three degrees of latitude north and thirty-two degrees south.

Within this area it is largely and mainly grown, with the Atlantic Ocean as a boundary on the east, and twenty degrees of west longitude as its extreme western limit. Very little is cultivated outside of the limits mentioned, neither the extreme northern, southern or western States seemingly being favorable for its successful cultivation. In this connection I except the island of Cuba, which lies between twenty-three degrees north, and twenty-one degrees of south latitude.

Both climate and soil have a wonderful influence in producing either a coarse, heavy, and low grade article, or one of fine and high standard of excellence in the market.

Thus for example that grown on the soil of Cuba, with its added climacteric influences, which are well known to produce no small share of the good qualities which are possessed by tobacco grown in that country.

Therefore when I say that all climates are not adapted to its successful culture, I mean largely, as a crop and an article of commerce. The weed is grown to some extent throughout a wide range of latitude, and most excellent varieties are produced in the equatorial regions. As an article of traffic, however, bearing heavily upon the trade, and tobacco revenue of the different countries of the world, Cuba is perhaps the most noted hot climate in which it is produced. Scientific men assert that the high flavor and delicate aroma of the Cuban plant is produced by the influences of its climate, the sun's warm rays by day, warm moonlight nights, the frequent and heavy dews and air at all times heavily laden with the perfumes of spices, flowers and tropical fruits.

Tobacco is a great absorbent, and it is not at all improba-

ble that, to a combination of these influences, we may ascribe much of the piquant and spicy aroma of the plant produced in the "Ever faithful Isle."

SOIL.

To be brief, the soil required should be deep, of a sandy or loamy nature, rich, mellow and warm.

Virgin soil is better than old land. It should be of a rolling nature, and with an eastern or southern exposure if upon a hill. Lowlands, river bottom lands, will do well if not subjected to overflow.

Land which produces heavy crops of clover, timothy and blue grass will, in general, if well conditioned, yield fair returns in tobacco. I treat more fully and in detail upon this subject in the chapter on "preparation of the soil."

In several districts or Parishes of Louisiana there is a combination of soil and climate which produces a most celebrated and high priced brand, Perrique tobacco. The crop is small, the plant also small, and the leaf when cured very dark, and when manufactured into smoking tobacco it is black, strong and fragrant. This brand of tobacco, owing to the limited area of country, where the soil allows of its being grown successfully, commands the highest price of any grown in this country, the manufactured article commanding about four dollars per pound. It is not unlikely that there are other locations in the same state which will hereafter be found favorable to its production.

CHAPTER VI.

SEED AND VARIETIES.

A very important matter to be considered in the culture of tobacco is the selection of seed, both as regards quality and variety or kind. It must not be too old, but fresh, full

in the grain and well ripened. I have used seed two and three years old which yielded me as good results as that which was but one year old, but it had been fully matured before gathering, well kept and was clean and bright. If seed be harvested immaturity it will not germinate, and if it be kept from one season to another in a damp apartment it will absorb moisture, mould, and when planted prove worthless.

Tobacco seed is exceedingly minute, so small indeed as to require a magnifying glass to examine a single grain. I have weighed seed at different times, and found it varied from 1000 to 1200 to a grain avoirdupois weight, or at the rate of the enormous number of 7,680,000 to 9,300,480 seed in one pound. Seed weighs more or less heavily according to its density, and density and consequent heavy weight depends upon its being fully ripened and thoroughly cleaned.

Much care and close inspection is required by the purchaser, particularly the new beginner, in selecting seed. An inexperienced person may easily be imposed upon. Very much worthless seed is bought and sold. Very many planters meet with most vexatious failures on this account. I have often heard them say, "my seed did not come up," or "I have no plants, my seed failed." Sometimes the seed polls are caught while yet in the green state by a heavy frost and thus injured or utterly spoiled. Another has a lot of seed which has been kept where it was subjected to heat and moisture, and then again to another operation perhaps, freezing. It will surely prove inert. Purchase your seed from a reliable dealer, or from one who has long been engaged in planting, he will furnish you seed you may rely upon as being "up to the mark."

VARIETIES.

In the matter of variety much depends upon locality. One kind will thrive and give good results in a given local-

ity, which if cultivated in another soil and different climate might prove either a failure or but indifferently successful. In the States of Pennsylvania, New York, Connecticut, Ohio, Virginia, Kentucky, seed raised in either of these States, will soon adapt itself as a plant in each of the others, it will soon become acclimated and though changed somewhat materially, will, ere long, make of itself a native. Thus, for instance in Pennsylvania, a large, heavy and in many instances a coarse plant is grown. Introduce Havanna seed, and for the first year or two you will produce a small, delicate and highly flavored leaf, with marked Cuban qualities, which however, under the influences of Pennsylvania climate and soil, will soon deteriorate and become "Pennsylvania Tobacco." Connecticut seed is favorably introduced from that State, and grown in each of the others, and vice versa, seed taken from plants grown in Virginia or Kentucky, and cultivated in Connecticut or any of the States aforementioned, will soon acclimate and partake of all the qualities of those districts. If, however, it is desirable to raise in one given locality a variety grown in another, because of some peculiar and markedly good quality, then seed from that locality should be secured every year, so as not to allow of degeneration. If a favorite Virginia variety be desirable in Connecticut or New York or Ohio, secure seed yearly from the "Old Dominion." If Pennsylvania wishes to grow Connecticut tobacco, send yearly to that State for a supply of seed. In some localities Cuban tobacco has been and is grown with very fair success, for although the plant is small, and the yield not nearly so large, acre for acre, as that which is "to the manner born," yet the quality is so fine and the manufactured brands of cigars so excellent, that the price obtained for such leaf is correspondingly higher than the native, and fully remunerates the cultivator. This, however, can only be done by a yearly supply of seed being obtained from the Island of Cuba, otherwise, the plant will lose its Cuban characteristics.

In some Southern localities, notably in the State of Georgia, Cuban tobacco alone is cultivated, and with very large pecuniary results. The average yield is much below that obtained in the Middle States, per acre, from native varieties, being only about six hundred pounds, but they readily receive from \$60 to \$80 per one hundred pounds for the product. In general excellence it is considered as falling not far below that produced in the Island of Cuba.

In this State I have experimented to some extent in the cultivation of that foreign variety, and in quality it has been a success. We, in this State, will however labor under this disadvantage for some time, and until the production of the same will have become more general, to wit: buyers will not discriminate in favor of the added "Cuban" qualities to a sufficient extent as will repay us for the lack in quantity produced, by raising this small plant, from yearly importage of seed. This, in time, may be overcome, if any locality will persevere long enough to make known the excellence of its foreign production.

There is a field open for any one, who possesses a good salubrious locality, with deep, rich and loamy lowlands, not subject to overflow, and who has energy, perseverance and capital sufficient to sustain himself, to make a success of this leaf by bringing it into notice to the trade and the public as "Pennsylvania Havanna."

I do not mean to say that an article can be produced in this or any other State equal, in those fragrant and grateful qualities, which characterize Cuban tobacco, but I do say that I have produced here a tobacco from Havanna seed, which, in its aroma, when smoked was easily recognized as a foreign variety, and far exceeded that of any Pennsylvania plant which could be produced from a native seed.

CHAPTER VII.

SEED PLANTS.

We of the Eastern and Middle States produce two kinds of plants, those grown in "hot beds," under glass or white canvass, and those grown "in the open air."

I will first give the "hot bed" method which I have found to answer my purpose best. I make ready my frames in the fall of the year, generally about the latter part of October. A hole is digged, in a southern, south-eastern or eastern exposure, twelve feet long, five feet wide and about twelve inches deep. On this, on the edges, I place a frame, supported at each corner by a strong stake driven into the ground. In the fall, before the ground freezes I secure two cart loads of leaf mould which I place along side of my frame, and cover up closely with straw and bundles of corn fodder, ready to be unearthed in February or March. When the proper time arrives, say about the last of February to the middle of March, when the sun has acquired good power, when the ice breaks up and the ground begins to thaw, then I begin my first Spring operations for tobacco. This, in our latitude is ordinarily a month sooner than you would be enabled to seed in the open ground, unless it be an exceptionally early Spring. I then have the hole filled to the top with a lively, half rotted stable manure, that produced from the horse stable, a straw manure, hot and in an active stage of decomposition. I never use old or fully rotted manure, as it would not generate the heat necessary for the purpose required. This manure, is packed well into the hole by being firmly trod upon. Then I unhouse my pile of leaf mould by removing straw and fodder. It is in fine condition, not having been frozen, or if so, only a few inches in depth. This is turned over and thoroughly pulverized. Then my frame, which is about the same size as the hole in length and breadth,

and fifteen inches high at the back and ten inches in front, giving a slope of five inches to the sun, being all ready is placed over the hole and secured on the stakes. I then mix with the leaf mould about one bushel of leached ashes, and two bushels of finely pulverized horse droppings. The soil being then prepared, is placed upon the manure inside the frame, to the depth of about eight inches, moderately pressed down, and evenly and smoothly raked over its entire extent. Then I take my seed, which I am most careful to assure myself is of first-rate quality, not more than a heaped teaspoonful. I then mix this seed intimately with a quart of ground plaster or dry leached ashes, and sow it evenly over the surface of the bed. I never rake the bed but take a light, inch thick, pine board and use it to press the earth down lightly over the whole surface. Then my sowing is completed, and I place on the frame four sashes containing window glass, each frame being three feet wide by about five feet long, sufficient to effectually cover the frame, and made close enough to exclude cold and to retain all heat generated within. I then bank up the earth all around against the sides of the frame. If the sun be bright and warm, in the course of four or five days I open the frame by lifting one of the sash, and I find it quite warm within and a gentle vapor arising. I run my hand down into the earth, and I find it has become quite warm, and in case the soil be a little dry I take a can or two of tepid water and sprinkle it all over. I then leave it, and in the course of eight or ten days I find the seed germinating nicely, coming up thick enough, all over the bed. From this time on, as often as the weather will allow of it I open the frame about noon of each day, for an hour or two, and give the young plants an airing. As the Spring progresses and the weather gets settled and warm, say along in April, I remove the windows in the morning and keep them off all day, and if the nights happen to be exceptionally warm I keep them off altogether. In this

way I succeed in securing strong and vigorous plants to set out early in May.

But I am asked, wherein consists the advantage of this process? Simply this my friend: I thus render myself independent of frosts in April or May, which might ensue, and often do, destroying all the plants which were being cultivated in the open air. Another thing, by securing early plants I can gain a month in setting out and can therefore cut matured tobacco early in August. Well, what then? This: From the roots or stumps of the plants, which are cut early, spring vigorous and numerous shoots or sprouts which, if the fall be at all a late one and favorable weather, I can harvest a second crop of tobacco not nearly so fine as the first one, but which will go well towards paying the expenses of the first crops.

So much then for the hot bed plants. I will now give my "open air process."

OPEN AIR PLANTS.

This is the best mode of raising plants in all districts where the climate will allow of working the ground and sowing the seed early in the month of April, or the latter part of March. It is less expensive, less trouble, and the plants are hardier and less apt to wilt and die, when transplanted from their beds to permanent quarters. It has, however, the disadvantage which I before mentioned, first, danger of being frost killed, and also inability, very often, of maturing them soon enough, so as to allow of setting out in time to secure, after cutting, a good second crop from the same stalks.

This is no small matter, for if an early start be secured and the crop cut about the first to the tenth of August, and the fall be a long and open one, you may secure an after yield, paying from fifty to seventy-five dollars per acre—or even more. I am thus plain in these details, because in

cultivating this plant it is well to observe every point which will add to success. I calculate my second crop will at least pay for manuring and plowing the land.

In preparing my seed bed I am always careful to select a warm and sheltered locality, looking to the south or east. Select, if you can, a piece of new ground, protected at the north and west by a copse, piece of a woodland or a large building or close board fence.

Then rake all the dead leaves, old brush, corn stalks and old limbs of trees, into small heaps about twenty feet from each other and then set afire. When they are thoroughly consumed have the ashes raked cleverly over the surface which is intended for your seed bed. Then have the ground well spaded to the depth of at least twelve inches. While it is being spaded work into the furrows a plentiful supply of well rotted horse manure. After spading the ground have every clod broken, all stone and stubble removed and rake it clean and smooth. Then top dress the surface with a compost made up of horse droppings two parts, leached ashes two parts, and one part Peruvian guano or chicken manure. This must be well raked and thoroughly incorporated in the surface soil. When this is done the ground is in readiness for the seed. The ground must not be too wet neither too dry, when the seed is sown, but select a day when there is an appearance of approaching rain, or one or two days after a light rain. Do not sow the seed on a windy day, as the light grain will be blown and fall unevenly over the surface of the bed, but choose a mild and calm morning. For every twenty-five yards of surface square, take one tablespoonful of seed and mix thoroughly in about one peck of ground plaster or finely sifted ashes. Then sow it broadcast over the bed, endeavoring to secure as even an application to the whole surface as possible. Secure from the slaughter yard about one bushel of hog hair and spread it evenly over the bed. This answers several purposes. It secures warmth and protection to the delicate young plants

and in addition seems to supply to them some chemical ingredients which tend to promote their rapid growth. When this is done get a few bundles of small branches of pine or cedar and place them over the surface of the bed. These also furnish heat and protection and may be removed when the plants have grown to the size of a silver dollar.

During the growth of the plants great attention must be given to weeds, taking them out as soon as large enough to be distinguished from the young plants and this must be done by hand. In a case of a drought, sprinkle the plants in the evening from a watering pot, giving them a thorough soaking. This will be all that will be found necessary to mature the plants for use when wanted to set out in the patch.

CHAPTER VIII.

SOIL AND ITS TREATMENT.

A diversity of opinion seems to exist among the growers of tobacco, as to the relative merits of level lands and rolling, of hill and bottom lands. I think the question narrows itself to this: In some localities and climates, high or rolling lands are best adapted to the varieties there raised, whilst in other districts, other kinds require and thrive best on level or low lands, always, in either case bearing in mind that the lands should not be so hilly as to wash off plants and nutritive substances, or so low as to be subject to overflow and thus drown the plants or render the ground so moist as to unfit it for working purposes.

In some parts of Virginia, Kentucky and North Carolina, the finest and best qualities of tobacco are raised on the sunny sides of gentle hills, and on what are termed foothills, whilst on the other hand, in Connecticut, Pennsylvania and Ohio, the heaviest crops and finest tobacco are raised

on level land and bottoms, along creeks or rivers, elevated just enough to render them secure from overflow. A little good judgment will suffice for any intelligent person in the matter of selecting a site to locate his patch.

Another, and important matter not to be overlooked is the quality of the soil. If you have not good land, naturally, you cannot produce a paying crop of tobacco. First, then, the soil must be good land, and naturally adapted for this crop, and in the second place, it must be rich, in good condition to produce.

What I mean by natural adaptation is this, it must contain within itself the organic matter, chemically, which enters into the body of the plant, and which is always vital to its successful growth. Tobacco is a plant which contains within itself very large percentages of the various mineral salts and other ingredients, which are absorbed from the earth and which the soil must hold largely, in order to prove good tobacco land. Of the salts it contains largely the following, Sulphate of Potash, Nitrate of Potash and Malate of Potash, Chloride of Potassium, Phosphate and Malate of Lime, and Malate of Ammonia. It also contains a large quantity of Lignine or woody matter, a trace of starch and some Silica. For the other ingredients in detail see my analysis, as made by the celebrated chemists of Prussia—Reinmann and Posselt. Water enters very largely into its composition, it carrying nearly nine parts of water to one of solid matter, thus ten pounds of green tobacco when dried out would lose nearly nine pounds of its weight, leaving but about one pound of solid and dry material. In 100,000 parts 88.220 are water.

Water, then, as you will notice, enters largely into its composition, and this element exerts no small influence in its growth. It therefore must be taken into consideration in its cultivation. In case of great drought tobacco soon suffers much at certain stages of its growth, and will wither, turn yellow and cure in the field ere it is ripe. This

could be obviated by irrigation by all whose land is so situated as to allow of this artificial mode of watering crops. It is well to have an eye to this emergency in locating your patch on lowland, contiguous to a stream. By an artificial conduit, or water canal, you may so arrange as in such a time to turn water on your land, and save a valuable crop. Some growers known to me have large patches along their streams, and when needed irrigate their crops and often in the Spring and fall of the year turn the water on their lands in order to manure them, procuring thereby a most excellent fertilization at little or no expense. I am thus explicit in this matter because it is important, and there are many planters who have it in their power, with comparatively little trouble and expense to establish this most excellent auxiliary and important adjunct not only to cultivation of tobacco but agriculture in general.

In a previous portion of this book I touched upon the quality of soil required, a friable and not too heavy soil, of a sandy or loamy nature. These requisites are generally met in limestone, slatestone and freestone districts, as they are generally known and termed locally and geologically. First-rate clover, timothy and blue grass producing lands will nearly always meet the requirements of tobacco land. If you can produce fine and heavy crops of them, you may be reasonably sure that your land will yield well if planted in tobacco, always provided the season be favorable, and your crop properly cultivated. I think I may here state, that in the middle States, and climates generally in which tobacco can be successfully cultivated, it is now a well established fact, on all land which will grow satisfactory crops of the cereals, tobacco will find a genial habitation and will prove remunerative to the planter. In all sections, where tobacco is now grown, clover seems to be a most favorite soiler. It seems, more than any other grass, to carry with it most abundantly all the chemical constituents required for tobacco. It is a ready, rich and cheap manure, and in

combination with stable manure, in many tobacco growing regions, is displacing all other fertilizers, planters finding in it all the requisites for keeping the land in a condition of fertility necessary to produce the greatest possible yield. I speak now, of course, of those sections of country where clover is a common and a favorite crop; where it is not, then dependence is to be had upon other grasses and stable manure with artificial fertilizers.

In such districts the land soon becomes impoverished and rendered unfit for tobacco, if many successive crops be raised on the same ground. This is a subject which I shall show more fully in another chapter, and which requires full attention from the cultivator of this plant. Unless his land be kept up in prime condition a very few successive crops will render the soil unfitted for future crops.

It is upon the same principle that successive and heavy crops of wheat or corn will exhaust and impoverish the soil unless rotated or kept well up by heavy applications of such manures as will restore to the soil its lost elements. Every farmer and planter knows this, and I will only say it is thus with successive yields of tobacco from the same land, only to a far greater extent is the impoverishment carried. Tobacco will pay, tobacco will yield immense crops and bring wealth to the pockets of the producer but woe to the land, the impoverishment is correspondingly as great.

CHAPTER IX.

PREPARATION OF LAND AND SETTING PLANTS.

Various methods of preparing the land and setting out young plants are practiced in different tobacco growing districts. I will first give my own manner of cultivating the weed, and afterwards add those practiced in other sections

of the country. I get my land in order by the first of May, have it well ploughed, and by well ploughed I mean deeply ploughed, cleanly ploughed, and ploughed when the ground is in the best possible order. If it be ground that was in tobacco the previous year I have it well manured with stable manure, generally putting on twenty-five two horse loads of the same to the acre, and from seventy-five to one hundred bushels of leached ashes. I say if it was in tobacco the year previous because it is better to rotate the crop, if one season in tobacco, sow it in the fall in wheat and you will, without fertilizing, secure an exceptionally large yield of that cereal, the former crop not having required or taken from the soil the elements which are needed in order to produce a good crop of wheat. If the ground which I intend for the plant is a clover sod, I plow it down and have it harrowed until well smoothed. All clods are broken and smoothed out, and the field made as nice as "a garden patch."

On this patch, I will mention, I put about ten two horse loads of stable manure to the acre, but you may readily add ten more per acre, if you have it, with profit to your land, your crop and your *purse*, always bearing in mind your *pocket*.

I then score out with shovel plow, drawing my furrows straight, and for large variety of tobacco, three and a-half feet apart, for small or Havana seed leaf three feet between furrows will be right. Some planters prefer to score out each way, thus checker-boarding the patch, and allowing of passing the cultivator each way during the season. It is also claimed that in this way water accumulates around each square, and forms a minute reservoir for each and every plant. I however have tried both plans and cannot say that I find any decided advantage in this last plan, hence I run my furrows but one way, three and a-half feet apart. A damp, rainy or misty day is always the best time to put out plants. When your ground is well in con-

dition if you have not the weather mentioned then you must wait for a suitable season. On such a day, your plants must be taken carefully from the hot bed or open ground, as the case may be, with as much earth clinging to their roots as possible, handling them tenderly and placing in shallow boxes or baskets. Sprinkle a little water over them with watering pot, then cover them with some leaves or a light piece of muslin or newspaper. Now send them by boys out to the patch. Let one man go down the furrow with a stick about twenty-eight inches in length, measuring and marking by a scratch on the surface of the soil each point where a plant is to be set. He can do this very rapidly, and the boys following him will drop a plant at each spot marked. They must not distribute too many plants on the ground, for if it be a warm day they will wither and suffer injury. Two men follow. With the fore-finger of the right hand they make a hole in the soil large enough to admit the roots of the plant, placing them in carefully and straight, and then pressing the earth closely around the plant, covering it up as far only as it stood originally in the hot bed, and removing any broken or dead leaves adhering to it. See to it that the plants be set straight, otherwise they will grow warped and stunted. Do not set a broken or crushed plant, it will be labor wasted. Finish planting your patch all at one time if you can, so that there will be a uniformity in the maturing of the crop. In the course of two or three days, or as soon as the plants have been started, go over the entire field removing all dead, withered and sickly looking ones, replacing them with others from the seed bed. You will require to do this several times in the course of the first two or three weeks, as it not infrequently happens that quite a number fail to grow. You will find wilted, sickly and dead ones for some days after setting, if the sun beat excessively upon them, and should a very heavy rain storm ensue, many will be covered up or altogether washed out. These you must replace.

Another thing: In the course of a week or two after planting, an enemy makes his appearance in the form of the cut worm. Go over your patch and to a greater or less extent you will find his evil traces, young plants cut off down near the ground. Dig for the invader at once, you will find him nicely hidden just below the surface along the stem of the plant. Destroy the little villain, replace with a new plant and continue your search.

You will have to go over the same course more or less frequently, while the plants are small and tender, in proportion to the number of the destroyers and the damage which ensues from their evil work. This trouble however lasts but for a few weeks. The plant will soon grow away from him.

CHAPTER X.

TOBACCO CULTIVATION.

In a week or ten days after the plants have been set out, or as soon as they secure a good "stand," that is a good "send off" "or start," have taken root and started growth in their new quarters, then I begin cultivating the soil. About this time grass and weeds will put in their appearance and require close attention. I first send my cultivator through the patch, twice through the same row, not too near the plants, but well off so as not to throw the soil over them. This being done my men go carefully along every row with their hoes, breaking clods, smoothing the soil where inequalities exist and stirring the soil between the plants, carefully digging out all grass and weeds, and uncovering any plants that may have had soil thrown upon them. Where there is a small or sickly looking plant, place alongside of it another and a more vigorous one. Do not pull out the first

one but allow both to grow together for a time, and then remove the least vigorous of the two.

My first cultivation I generally consider the most important, and hence exercise more than ordinary care. I keep the soil immediately under each plant and around it fine and loose, and draw a little fine, moist earth, well up around each stalk. Great care must be exercised in plowing and hoeing that the roots are not disturbed. Everything depends on your plants getting a good hearty "send-off," or in other words a good stand. When you secure this, when you look over your patch and see long straight lines of delicate green, each plant standing up, vigorous and meaning to grow, then half the battle is won. The cultivator I prefer to the shovel plow, as it better reduces the soil, and as before stated I pass once up and once down through the same row. Never neglect this first cultivation and attention to your plants, for if you do your crop will be lost. A warm rain and hot sun will so stimulate weeds and grass that what at an early day could be easily eradicated, soon becomes a deep seated enemy to destroy which will surely also uproot, tear out, break down and ruin your young and tender plants. If you are careless and dilatory at this time you will surely suffer by having a poor and perhaps a worthless crop. Failures, particularly in new growers, most often result from lack of attention at this critical infantile period of the crop.

The first working of the crop is always better if done soon after a light rain, when the earth is soft and pliable, but do not allow a dry season to deter it, go into the patch anyhow, your plants must have an early plowing and hoeing, if grass and weeds are appearing. Early and frequent cultivation are beneficial for several reasons—First: exposing the soil to atmospheric action is good for the soil itself, and indirectly to the plant. Secondly: It breaks up the hardened and sun-baked surface soil, thus favoring the early rooting of the young plant. Thirdly: It destroys grass and

weeds which would otherwise soon crowd and smother the young plants. To sum up, then, always see that your plants have a good, fair start.

You may cultivate between the rows as often as once a week, and keep at it until the tobacco becomes too large to allow of horse and plow passing up and down the furrows. As the leaves increase in size, you must see to it that they be not covered by the soil, those lowest down, which is thrown towards them by the plow.

In this connection, and having given my own method of treating the plant, both in the seed bed and in the field, I will present the various ways of cultivating tobacco, as pursued in different localities, in the production of all the kinds grown in this country. Whilst in general the mode of procedure is common to all, yet, as will be seen, there are differences in a small way, all of interest to the grower, and tending to secure the greatest excellence to the crop, and the quality of the plant.

In this I am aided by extracts from Mr. Charles W. Deckerman's work, entitled the "*The Farmer's Book*," also some reports from Kentucky, Virginia, Connecticut, Pennsylvania, contained in the U. S. Agricultural Reports, and material obtained from private sources.

For the material which I use, and which is cleverly prepared and highly valuable, I return my thanks to each and all of the authors.

Mr. Deckerman says: Tobacco culture is for the time being a paying crop, but it exhausts the soil more rapidly than any other crop. Any methods of culture that leaves this fact out of view are faulty, as they enrich the land owner at the expense of all the fertility of his land. And when tobacco land is once exhausted of its fertility by this crop no process can make it profitable to cultivate it again for any crop whatever.

For proof of this look at the exhausted, and worn out, and abandoned lands of both Virginia and Maryland.

In this view of the case I do not agree with Mr. Deekerman; I believe that any land, however badly used, may in time, if allowed to recuperate under nature's auspices, and then, by a judicious application of lime and manure, and growing clover and other grasses, be brought into a good condition for farming purposes. I have seen lands that were thus worn out, and which were taken in hand by good, practical and scientific farmers, and they are now producing good crops. So far as my system of cultivation, says Mr. Deekerman, is different from others, it is because this idea is prominent, viz. :

Any method of culture that steadily exhausts the land is faulty and ruinous. Tobacco will grow on almost any soil and in any climate that will produce corn, but a warm, mellow soil is its chosen home. The northern cultivator must secure warmth by selecting an alluvial, sandy soil or a light warm loam, and increase it by abundant manuring. The southerner may depend more for warmth upon his sunny climate and insists more upon depth and richness of soil. A heavy loam or a soft clay will do him good service. There are two exceptions to these rules, and they are rank soils which produce a "strong tobacco" and exposures subject to strong winds, where the plants will be broken and bruised. The preparation of the soil should be most thorough, as it not only increases the quantity but improves the quality.

We have seen two crops of tobacco grown on adjoining farms, sell, the one for eight and the other for twenty-two cents a pound, the difference being wholly in cultivation and handling. The one crop costs about fifty per cent. more to cultivate than the other, but it brought one hundred and seventy-five per cent. more. If the land has not been sub-soiled for the previous crop, plough in the fall and sub-soil to the depth of at least fourteen inches, and the deeper the better. As early in the spring as the ground will do to plow, the manure should be plowed in. The oftener it is

plowed, harrowed, rolled, plowed, crushed and harrowed, the better condition it will be in for the growth of the plant. It is difficult to tell just when this working of the soil ceases to be profitable, but our experience is that six workings, (including plowing and subsoiling in the fall), is the least to be recommended. This only provides for two plowings, one rolling, and one harrowing in the spring. Manures are the life of this crop, and it is only by the most abundant manuring that the fertility of the soil can be maintained in tobacco.

On newly cleared land, where the soil is filled with vegetable matter, and the brush has been burned on the land, three crops may be raised without manure, but no more tobacco should be raised on it for at least three years, and it should be liberally manured for the intervening crops.

Well rotted barn-yard manure, ashes and salt are the three specifics for tobacco. Lime it must have, either in the shape of ashes, gas lime or the super-phosphate of lime. Salt at the rate of from three to six bushels to the acre, furnishes the soda required by the plant. As for other manures the cultivator must use what he can get. Twenty loads per acre of compost, of muck with solid and liquid manure, with twenty bushels of ashes and four of salt, is the plainest prescription we can make. Twelve loads (by loads we mean loads) of compost as above, with two hundred weight of guano, (salt and ashes added as before), is a good proportion. If the ashes are not at hand, two to three hundred weight of phosphate can take their place. Guano on all crops should be covered deeply, while super-phosphate should be left near the surface. Manure from the hog pen, where peat and muck have been supplied liberally, is a most excellent dressing. In fact any substance that will promote the growth of other crops, will benefit this. Green and strawy manure should never be applied directly to the crop, but first composted. No ashes, lime or other fertilizer should ever be sprinkled on the leaves of the plants. (In

my caution in this respect I mentioned that it would injure the leaves, it causes them to spot, rot and break into holes, thus damaging the leaf as a wrapper for manufacturing purposes.)

This is of sufficient importance as to bear remembering.

SEED BED.

Preparing the seed bed should be attended to as early in the season as the ground gets dry. (I insist upon having your seed bed, either as "hot bed" or "open air bed," attended to and made ready as nearly as possible in the late fall.) One tablespoonful of seed, if each seed produce a plant, would suffice for one acre. But as a precaution against all accidents, sow three tablespoonfuls of seed for each acre to be set in tobacco. Each spoonful of seed should have a square rod of land, so that a seed bed of three square rods is required for each acre in plants. The most approved method of treating the seed is as follows: Select a protected, sunny spot, the south side of a wood, if convenient, or a southern slope, if possible, near a brook, for convenience in watering. Cut off all weeds, grass, etc., close to the turf; pile up dry, well seasoned wood, and burn the surface thoroughly; clear off the coals and spade in a quantity of manure about four inches deep. Rake in bone manure if handy. Stir up the seed in three times its bulk of plaster, and sow in a still, damp day, or water as sown. Rake the bed slightly (I prefer pressing it with a flat board only), and not to exceed half an inch in depth, then roll or tread down hard and even. Water the young plants constantly, if dry weather succeeds, always with tepid water, and never while the hot sun is shining on them, which rule applies to the plant in all stages of its growth. Cover the bed with brush until the plants are well out of the ground. The time for sowing tobacco seed in the extreme south is from the first of February to the first of March. In the extreme north it is two months later.

TRANSPLANTING.

Transplanting should be done, if possible, when the ground is damp, otherwise it will be necessary to water while transplanting. Three feet apart both ways is a safe rule in setting the plants, and the earth should be pressed firmly about the roots. Great attention is necessary to the newly set plants. Some cover them during the heat of mid-day, others water them morning and evening until they get established. Many will fail, and should be at once replaced. If the ground is very dry, a little hole should be made for the plant and a pint of water turned in. (By selecting a damp day, or just after a rain you escape this trouble. Never set out in dry weather if you can avoid it). As soon as it has disappeared, set the plant. In a week or ten days after setting cultivate and hoe. Repeat the operation as often as once in ten days, and keep the ground loose and clean until the crop is too large to be worked among. Soon after the plant is set, the cut worm makes his appearance, cutting off the stems of the young plants. Go through the field every morning, and where a plant has been cut off dig open the hill and destroy the worm. This is the only method we know of as being effectual.

MARYLAND CULTIVATION.

Walter W. Bowie, Esq., of Prince George's county, Md., gives his method of cultivating: He says, the soil best adapted to the growth is a light friable one, or what is called a sandy loam. New land is far better than old. Theory and practice unite in sustaining the assertion that ashes are the best fertilizer for tobacco. Where they are not to be had and the land requires manure, a mixture of one-third saltpetre to two-thirds of gypsum, well mixed, may be applied at the rate of three hundred pounds per acre. The land intended for tobacco should be got in nice order by the latter part of May, and when the plants are

in good order for setting out, should be scraped, which is done by running parallel furrows, with a small one-horse plough, two and a-half or three feet apart, and then crossing these again at right angles, preserving the same distance, which leaves the ground divided into squares of two and one-half or three feet. The hoes are then used to form the hills, by drawing the two front angles of the square into the hollow, or middle, and smoothing them on the top, and patting down by one blow of the hoe. The furrows should be run shallow, for the hills should be low and well leveled off on the top, and if possible, there should be a slight depression in the centre, so as to allow the water to collect near the plant. After the first rain after the land has been thus prepared, the plants should be removed from the seed beds and carefully planted in the hills.

The smaller or weaker hands, with baskets filled with plants, precede the planters and drop the plants on the hills. In drawing the plants from the beds, and in carrying them to the hills, great care should be taken not to crush or bruise them. When drawn they ought to be put in barrels or baskets, if removed in carts, so as not to have too many in a heap together.

In three or four days the plants may be weeded out, that is, the hoes are passed near the plants and the hard crust formed on the hills pulled away, and the edges of the hill pulled down into the furrows. This is easily done if performed soon after planting, but if delayed and the ground gets grassy, it will become a troublesome operation. After weeding out, a teaspoonful of plaster or plaster and ashes mixed, should be put on each plant. In a few days, say a week, run a small plow twice through between the rows with the landside towards the plants. This is a delicate operation, and requires a steady horse and careful ploughman, for, without caution, the plants will be rooted up, covered over or killed by loosening and exposing the roots. In a week after, the tobacco cultivator or shovel may be

used. Either implement is valuable at this stage of the crop. Once between the rows is often enough for either shovel or cultivator to pass. The crop can be greatly increased by their use, by stirring the soil once in ten days, for four or five weeks, going each time across their former cultivations.

Any grass growing near their roots may be pulled by the hand or cut off by the hoe. As soon as the tobacco has become too large to be cultivated without injuring the leaves by the whiffle-tree, the hoes should be passed through it, drawing a little earth to the plants where required and levelling the furrows made by the shovel or cultivator. Care should be taken to leave the land level, for level culture is generally the best.

When the plants begin to blossom, select the best for seed. One hundred plants will supply abundant seed for a crop of 40,000 pounds, all the others should be topped before they blossom, indeed, as soon as the blossom is fairly formed. It should be topped down to the leaves that are six inches long, if early in the season, but if late, top still lower. If the season is favorable, in two or three weeks after a plant is topped it will be fit for cutting, yet it will not suffer by standing longer in the field. Ground leaves are those which are at the bottom of the stalk, are dry and brittle, and should be gathered early in the morning when they will not crumble.

CONNECTICUT VALLEY CULTIVATION.

Having given Mr. Deckerman's method of cultivation in general, and that of Mr. Bowie, I will proceed to the description of the plans pursued in some other localities, and will first give that of the Connecticut region.

The soil is a warm sandy loam, manured with ten or twelve cords of stable manure, and two to five hundred pounds of guano per acre, harrowed in. The surface is

ridged up so as to bring the earth and manure around the plant. Sometimes the ground is lightly marked with the plow, and guano or super-phosphate of lime placed in the hill. When the plants are set they are mulched with straw or hay, to prevent their withering. At the time of transplanting, which occurs from the 5th to the 25th of June, (earlier than that in the Middle and Southern States), the land is plowed and a light furrow is cut, sowed with three hundred pounds of guano or super-phosphate, and covered with ridges, leaving the rows somewhat elevated. The Havana plants are set eighteen inches by three feet, the seed leaf two feet by three. The yield of the former, as I before stated, does not equal the latter, but in quality and the price obtained for it fully compensates for lack in quantity. Horse manure for the field culture is obtained as far as possible, and supplemented with any available and well decomposed farm yard manures, and also with Peruvian or fish guano, super-phosphates, wood ashes, bone dust, tobacco stems and other fertilizers. The ground is plowed and harrowed sufficiently to mix the fertilizers. The best cultivation is given; the seed blossoms are broken off and worms looked after with care. In the State of Connecticut is a district known as the Housatanic Valley, comprising Litchfield county, Fairfield county, part of Berkshire and part of New Haven. It is a noted tobacco district. Low prices, it is said, reduced the acreage and consequent yield to a lower figure than for some years, and the product in 1874, was estimated at three thousand five hundred cases, of which Litchfield county produced three thousand, or about one thousand acres. This district is an old tobacco region, and has had large experience with special or artificial fertilizers, and the conclusion is now reached that they aid the growth of the plant, but at the same time injure its quality. At the present time most of the product is grown with barn yard manure, yielding a product of better color and texture, and one that comes out of the sweat

better than that made with such special fertilizers. This is a point that requires close investigation by planters and packers of the weed. In New Haven county, the main resource for fertilizer, beyond the common use of barn yard manure, is a double refined poudrette. In Tolland county, the liberal use of horse manure, say eight to ten cords with three hundred and fifty pounds of guano per acre, is deemed sufficient to keep up soil fertility without rotation.

NEW YORK METHOD.

The main reliance in Onondago county, New York, where the leaf is grown most considerably, is upon clover sod and farm yard manure, though various kinds of commercial fertilizers have been used. In that district it is thought necessary for the successful cultivation of three or four acres of tobacco, to expend on it all the manure accumulated on a one hundred acre farm. The manner of cultivation is about the same as that of Connecticut.

VIRGINIA CULTURE OF THE PLANT.

This is the pioneer tobacco State, and until a very recent date was the foremost in production, both in quantity and quality of every grade of the leaf. I shall therefore dwell at some length on the qualities and kinds cultivated, and the methods pursued generally in its culture. I will first give the views of Major Robert L. Ragland, of Halifax county, Virginia, as expressed by him in a pamphlet on "The cultivation and curing of bright wrappers." Major Ragland says: Burn and sow in good time a sufficiency of plant land, in good warm situations for early plants. Use Gilham's Tobacco Fertilizer, when sowing the seed, 100 to 150 pounds to the 500 square yards, according to the fertility of the land burned. If necessary to force the plants along, use the same fertilizer, in smaller quantity, as a top dressing, observing to apply the fertilizer when the plants are not

wet with dew or rain. To prevent depredations by the fly, use ground plaster, in which rags, saturated with kerosene oil have been laid for some hours, and cover the plants, if necessary, with the plaster thus prepared.

“YELLOW ORONOKO” AND “SILKY PRYOR”

are the kinds best adapted to coal curing, while grey soils (and the fresher the better) with dry porous subsoil, are best adapted to the growth and maturity of yellow tobacco. Five years' experience in the use of Gilham's fertilizer has convinced the writer that it is the best aid in the production of rich, silky, bright yellow tobacco. Lands capable of producing yellow tobacco need just such help as is furnished by this fertilizer, in hastening the growth and giving size, substance and early maturity to the plant. From one hundred to three hundred pounds per acre may be profitably used. Apply in the drill, except in new ground, where this mode is inapplicable and broadcasting is the best. Plant in hills instead of beds, as soon after the tenth of May as plants and season will admit. Commence cultivation as soon as the plants begin to spread over the hills, whether grassy or not, and continue to stir the land with ploughs and hoes till the tobacco begins to come in top, using short single-trees as the plants increase in size, to prevent breaking and bruising. When the plants are too large to admit the plow, use only hoes to keep down the weeds.

In a small pamphlet entitled “The Cultivation and Curing of Sun Cured Fillers and Wrappers,” Dr. J. A. Flippo of Caroline county, Virginia, gives his experience, which I also present to my readers. Dr. Flippo says: The kind of tobacco to which our section is more particularly adapted, is termed with us “Fine Manufacturing,” and is cured without fire, that is in the sun or in well ventilated houses. It is chiefly sought by manufacturers for making fine brands of chewing tobacco. It is not so large and long as “Ship-

ping," but of much finer texture and more strength of fibre, is usually of a bright, rich, golden brown color, and a soft, silky "feel" and appearance, and when properly prepared for market, has a peculiarly sweet odor and taste, which is much relished by the lovers of the weed. Many portions of other counties in this line of eastern Virginia are, no doubt, well adapted to the production of this class of tobacco; and I believe, from observation, that lands not well adapted to it may, by certain modifications of cultivation and fertilizing, be made to produce an article very similar, if not identical, with that produced on lands best suited to its growth. Lugs, and the lighter leaves of this tobacco, also make a most pleasant and agreeable smoking variety. Indeed, with a little age and without preparation, I have found none on the market superior to it. The particular variety known here, and almost exclusively cultivated, is the ORONOKO, said to have been brought from the region of the Roanoke. The land best adapted to the production of this tobacco is gray, with a good proportion of fine sand in it and clay subsoil. I would always select such portions of a field as are level and not subject to water, but dry and solid, for tobacco lots, and cultivate no other, as this always produces the yellowest, brightest, smoothest and most saleable tobacco.

A timely supply of good plants is the surest means of getting a good "stand," and without a good "stand" a successful crop cannot be produced. A great deal depends upon the selection of the location for the plant bed, and this can be most safely done by one acquainted with the character of the surrounding land. It should be a moderately moist place, not too wet nor too dry, and as rich originally as you can get it. The old plan of burning with brush and wood is most reliable; but since labor has become scarce, and concentrated fertilizers have come into use, many farmers raise plants without manuring. The burnt beds, however, stand "drawing" better, recover more rapidly after

“drawing,” and furnish a much more certain succession of plants than the unburnt.

Unburnt beds will not succeed in low, moist places, on account of grass choking out the plants. Woodland, which has been covered with leaves, is best suited for unburnt beds. In dry seasons the unburnt beds require more watering to keep them growing. With regard to watering plant beds, it is much better to water them well once in four or five days than to sprinkle them every day. The earth should be made wet for several inches deep. In dry seasons and situations, many beds may be saved by one or two sufficient and early waterings; but if you wait too long they will often perish before the roots get sufficient hold in the earth, and before you know it. They should often be examined by some careful, experienced person, and watered before they become bare. Careless and irregular seeding is another cause of partial failure and late plants. The whole surface should be uniformly seeded. To this end one tablespoonful of seed to seventy-five square yards, which I consider the right quantity, should be well mixed with about half a bushel of sifted ashes. Then divide into four equal parts, and sow the bed with each part successively. This will insure uniform distribution. When the land is not very rich, some concentrated fertilizer must be raked or lightly chopped in after the bed is well prepared, and before seeding. When the plants get about the size of a ten cent piece they may be again dressed with a light fertilizer, before every rain, or if dry, watered after top dressing. Old tobacco and tobacco stalks, crushed finely, make an admirable top dressing, and may be applied without danger when the plants are very small. Many things have been used to prevent the destruction of plants by fly, but I know of no absolutely sure remedy. The location of the bed in the woods I have found to be the surest means to secure exemption from the fly.

TRANSPLANTING AND CULTIVATION.

It is the habit of the old tobacco planters in this section, to break up their land in the fall, or early winter, with the hope of getting rid of what is known here as the bore worm, a most destructive enemy to the newly set tobacco plant. Some, also, wait until a green crop appears in the Spring, on the surface of the land, to accomplish the same result. Neither plan always succeeds.

If the land is foul and it can be burned over before plowing, this will generally succeed in destroying them. When your plants are nearly ready, the land must be plowed and harrowed until fine. Then lay it off with a one-horse plow three feet apart. It is now ready for the fertilizer. Stable manure has been long known as the best fertilizer for fine manufacturing, sun cured tobacco, but as it is impossible to raise a sufficiency of this, tobacco planters have been obliged to substitute others for it. I have used for years with great success Gilham's tobacco fertilizer, about four to five hundred pounds to the acre, put in with the hand, and as equally distributed as can be done. After sowing a while you can regulate so as to distribute it equally over the bed at the rate above mentioned. After applying the fertilizer, you can proceed as soon as a few rows are done, to make the bed with a single plow on the furrow made before applying the guano. When the plowing is done on light land, the beds may be scraped down with an implement for the purpose, extending across two rows, and the horse walking between them. These rows are then marked with a measuring stick about two feet apart, and the places for planting chopped. Then the land is ready for planting with the first shower of rain that comes. In new ground and rough land this preparation cannot so readily be made, and requires a good deal more work with the hoe. The distance of planting fine, sun-cured tobacco, in my judgment should be three feet by two.

After several years experience I am satisfied that a greater number of pounds per acre, and a much more uniform crop, having a larger proportion of leaf tobacco, can be produced than by planting at a greater distance.

The "stand" of tobacco in slight seasons depends much on the care and manner of setting the plant. The roots of the plant should be carefully pushed to the bottom of the opening made to receive them, and the earth well pressed to the roots without injuring the bud. Some hands leave a cavity below the roots, and bruise the bud, and then it is not apt to live unless a rain immediately follows the planting. If the crop can be set from the 20th of May to the 10th of June, and a "stand" secured, it will be in good time, with ordinary seasons and cultivation, to "come in." Many good crops are, however, made on good land and in good seasons, when planted as late as the 25th of June. The cultivation on well prepared, smooth land, is easy. As soon after planting as possible, and before the grass gets of any size, I side with Watts' small mould board plow, as close as I can without breaking up the earth around the plant. This raises up and drops the earth back in the same furrow, at the same time turning over enough to kill the grass. Then scrape out the small strip left and work with the hoe. In a few days the plants will be large enough to be plowed again, turning the small mould board to the tobacco. Another working with the hoe and another plowing generally completes the cultivation. Some planters work again with the hoe, especially if the tobacco is small. Late working, as a general thing should be avoided. It keeps it green longer, and it is more liable to be spattered with dirt, from heavy rains soon after working.

SHIPPING TOBACCO.

William J. Powers, Esq., of Cumberland county, Virginia, gives his method of cultivating and curing "Shipping

Tobacco," which I herewith give to my readers, that which bears upon the cultivation of the plant.

Mr. Powers says: Tobacco may be grown either on high land or bottom land, provided it is well drained, and the surface soil consists of a deep mellow loam. Indeed I have found that creek bottoms, that are not often subject to overflow during the dry seasons, that so often prevail of late years, were much more remunerative when planted in tobacco than the hillsides. For the same reason, red land is not adapted to the tobacco crop, though a red clay subsoil is at all times desirable, in order to maintain the fertility of the soil. When hillsides are to be cultivated in tobacco, a southern slope is of course to be preferred. All tobacco lands should be free, if possible, from gravel and small stones, as they have a tendency to cause the leaf to blister before maturity. The rotation I observe is a clover or grass fallow in the fall, to be followed by tobacco, then wheat, then clover, then tobacco again; but in order to obviate the ravages of the wire worm, which is sometimes most troublesome on both clover and grass fallow, I have sometimes tried tobacco after tobacco with decided success, though this diminishes to some extent the area for the wheat crop. I have always found the time to break up land for tobacco, to be as early in the fall as possible after gathering in the corn crop, as the frosts of winter are very beneficial to the soil and very destructive to the numberless worms and insects that are thus thrown up to the surface.

MANURES.

I usually haul out and broadcast uniformly over the land intended for tobacco, all the farm, pen and other coarse home made manures that I have been able to save during the season, as early in the spring as possible, after the land gets dry enough for the teams to enter without poaching, and thus turn these under with a moderately shallow plowing,

and harrow over until the soil is well pulverized. I have found the early application of all coarse manures to be the best, as giving them more time to decompose and become incorporated with the soil. About the 1st of May I lay the rows off, $3\frac{1}{2}$ feet apart, with a one horse turning plow. In the furrows thus made I apply from four hundred to six hundred pounds of some standard fertilizer, (I find none superior to Gilham's), then lap the dirt on this with a two horse turning plow, and chop and pat the lists thus thrown up every three feet with hoes, in order to make a place for the plant to be set. The planting season with us on the south side generally commences about the 20th of May, and continues till about the 20th of June, by which time with proper diligence, most planters can succeed in getting a good "stand." As soon as the young plants show signs of growth they should receive a light working, with the plow and hoe, to keep down the growth of weeds and grass, and this should be kept up at intervals until, the tobacco having well covered the land, it is no longer necessary.

LANCASTER COUNTY, PENNSYLVANIA.

This county is acknowledged generally to be the "Banner" tobacco district of the United States. No other equal area of land produces as many pounds per annum, of a standard excellent quality, commanding the highest possible prices for native grades, of any grown in this country, and bringing a revenue to the producers larger than that of any tobacco county in America. This tobacco as a commercial product, stands high and is much sought after, because of its uniform good qualities as a wrapper, being fine, large, and of a beautiful dark color, all qualities much in demand for the production of a fine cigar. Another marked characteristic of the Lancaster county tobacco, as a crop, is the large amount which is yielded per acre. Lancastrians are synonymous with good farmers, and in this crop they seem to have

"set" themselves to outstrip the world, and thus far they have done so, indeed. Each one seems to vie with his neighbor in a friendly competition as to which can produce the greatest yield per acre, which grow the largest leaf, which cure the most satisfactory crop and obtain the largest returns for his product. Many and great—yes, marvellous in the extreme, are some of the stories told relative to the yield per acre—so great as to lead one to suppose that Lancaster acres must certainly be of somewhat more extended area than our arithmetics ordinarily teach us. Be this as it may, however, there is a sufficiency of truth overlying all error as to render the subject interesting and even wonderful to the general or old time grower of the weed. In agricultural interests generally the farmers of Lancaster come as near perfection in their skilful manipulation of the soil as any community of the kind in this country, expending their labor in the most economical and intelligent manner possible, so as to insure lucrative returns.

It is not then to be wondered at that, upon introducing tobacco as a product, they should bring to bear upon its culture the same energy, intelligence and skill which characterized them in other pursuits and which soon placed them in the foremost rank as cultivators of the weed.

It is on this account that I shall present in a rather extended manner the various methods of cultivating and handling the weed as pursued by the husbandmen of that fertile district.

In the main, their methods are much the same as those I have given as my own practical experience, indeed we can all do well "an' we follow them." In all their work, whether it be the preparation of the soil, the working of the seed beds, transplanting the young plants, cultivating, cutting and curing it and shipping to market, all is done with a care and thoroughness from beginning to end which stamps them masters of the field and high artists of their laborious but honorable calling.

I have read with pleasure and profit a small but interesting pamphlet written by Mr. C. F. Libhart, of that county, and as it is able and very well written, I purpose giving some extracts from his paper. Mr. L. first gives his plan for raising the plants, hence I will first introduce the

SEED BED.

Mr. Libhart says : In the preparation of the plant beds and sowing of the seed great care is required, as a good crop of tobacco depends greatly upon a good and abundant supply of plants. Select a situation free from the blasts of the north winds, and which receives during the day as much sunlight as possible. Then manure strongly with well rotted compost, hen manure, ashes or other good fertilizer, and spade to the depth of about a foot. Then rake or otherwise pulverize the ground to as fine a condition as it is capable of. When the bed has been so prepared, the seed should be sown in about the quantity of a teaspoonful to every one hundred square feet, and in order to get it more evenly distributed, it may be mixed in dry wood ashes or sand. Sprouting the seed previously to its being sown is not a good plan, as the germ is so delicate that it is apt to be injured by handling or drying up in the sun, besides being entangled in bunches and thus coming up very irregularly. After the seed has been distributed over the bed it should be rolled or beaten down with the back of a spade ; this presses the earth around and against the seed, which enables it to germinate quickly, as, owing to its minute size, it is not able to do when lying loose and exposed to the air.

In this latitude, forty degrees north, the time for sowing the seed varies from the fifteenth to the thirty-first of March, according to the season ; this renders the plants fit to set out about the latter end of May or first of June.

They may be two or three weeks earlier by forcing un-

der glass, and in high latitudes this will be necessary to insure a ripening of the crop before frost.

Whenever the surface of the bed becomes dry, it must be watered with tepid water; this should be done in the morning or the evening. It is scarcely necessary to add that the bed must be kept clear of weeds; tobacco differs from most weeds when making its first appearance above ground, by its bright green color and by lying flat upon the soil. After the leaves of the plant have attained the size of a quarter-dollar, they may be set out in the field, but they will be all the better if double that size, as they are then not as easily destroyed by the cut worm. The main point, and that on which success mainly depends, in raising a good crop of tobacco, is to have good plants enough to fill the patch at one planting, so that the tobacco may be of a uniform size and ripeness when cut off.

VARIETIES.

Mr. Libhart thinks the best varieties adapted for Pennsylvania are the Connecticut and Pennsylvania seed-leaves. Pennsylvania seed-leaf outstrips the Connecticut in size and weight, but owing to its taking longer to mature in this climate than the last named, is not so desirable.

Mr. Libhart thinks it a good plan to spread manures and plow down several weeks before the plants are put in, and he sets no limit to the quantity of manure per acre; "the more the merrier" for the crop which is to follow.

When the ground has been well fertilized, plowed down, and furrowed off so as to be ready to receive the plants, then you may begin

TRANSPLANTING.

His directions are: When the ridge has been thus prepared, one person goes ahead with a basket of plants and drops one on each bunch, another person following and

planting them almost as rapidly as they are distributed, because it is injurious to the plants to leave them exposed to the air for any considerable length of time. In inserting the plant a hole may be made with a pointed stick, but the most expeditious, as well as the best way, is with the hands. The roots of the plants are carefully inserted, and the earth pressed moderately tight upon them; care must be taken not to press the delicate heart-leaves, for upon their preservation depends the future vigor of the plant. The best time for planting is during a warm, drizzling rain; but if no such occasion presents itself when everything is ready, then immediately before or after a shower will do nearly as well. If it is necessary to plant without rain, it should be done in the evening or morning, and each plant watered slightly.

CULTIVATION.

Mr. L. strongly advises cultivation as soon as the weeds and grass appear, sending a cultivator between the rows and exercising care that the soil be not thrown over the young plants; also that the ridges be hoed down to a level with the plants, and all grass and weeds eradicated from around the plants. As soon as a new crop of weeds appear then the cultivator and hoe must again be brought into use, and this course continued during the growth of the plant, until, from their size, it will be injurious to the growing crop for man, horse and plow to pass between the rows.

A few points I wish to impress upon the amateur planter or beginner, before taking leave of this branch of my subject, and they are these: First, always be particular to secure for your future crop the *best variety of seed*. Second, be sure that your seed is *fresh and reliable seed*. Third, select for your future crop of plants a *warm and fertile seed bed*. Fourth, in order to insure the best possible returns for your

labor, it is absolutely necessary that you select for your tobacco crop, a *warm and fertile patch*. Fifth, see to it that your growing crop receives the full measure of intelligent and *thorough cultivation*.

CHAPTER XI.

TOBACCO WORM.—MACROSILA (SPHINX) CAROLINA.

This destructive enemy is known by the several names of "Tobacco worm," and tobacco "hawk-moth," or "horn blower." Its ravages are not confined to any one section of country or climate, but it invades the tobacco patch wherever the weed is grown, and if not strenuously combated, will certainly ruin the crop. Its ravages are also extended to tomato plants, which, however, are but comparatively little damaged by their incursions.

It first appears as a moth, tobacco hawk-moth, and deposits its larvæ or eggs on the leaves of the plants. In May and June, and sometimes July, this large moth may be seen during the early summer twilight, hovering over flowers and honeysuckle and Jamestown weed. It is often mistaken for a humming bird, which in its quick and humming flight it much resembles, with its long and flexible tongue it sucks nectar from the flowers, and when at rest it folds its tongue up into a coil. This insect is much like the northern so-called potato worm, and is often mistaken for it in all its stages of larvæ, pupa and insect, and can scarcely be distinguished from it by young entomologists. In the tobacco worm, however, the tail horn is (in the insect) reddish instead of bluish, as is the case with the potato worm in the insect stage. It also has no longitudinal white stripe, the pectoral feet are ringed with black, the body is more hirsute, and the insect itself is more indistinctly marked, and always has

a white mark at the base of its wings and partly on the thorax, which the moth of the potato worm has not.

The potato worm is also found feeding on the tobacco in Maryland and Pennsylvania, and frequently a black, or nearly black, variety of the worm is taken, especially towards the end of the season. The potato or tomato worm has also been accused of being poisonous, but this is entirely erroneous, as the horn on the tail of the caterpillar is incapable of inflicting any serious wound, and has no poisonous properties whatever. The potato worm is the northern species, and in Maryland the two species meet, and are found indiscriminately together in the tobacco fields, yet never mixing, but remaining perfectly distinct, although so nearly allied in appearance, habits and food. There are several parasites, and one in particular, that is very useful in destroying the potato and tobacco worm. It is a minute, four winged fly, (*microgaster congregata*) which deposits its eggs in the caterpillar and eventually kills it. The eggs of this parasite, to the number of one hundred or more, are deposited on the back and sides of the caterpillar, in small punctures made by the ovipositor of the fly.

The larvæ, when hatched, feed upon the fatty substance, and when fully grown eat a hole in the skin, and each maggot spins for itself a small, white, oval cocoon, one end of which is fastened to the skin of the worm, and the caterpillar appears as if covered with small, white eggs. Eighty-four flies were obtained from one caterpillar by Say, and Fitch counted one hundred and twenty-four cocoons on another worm, so that these insects must destroy a great number of worms.

The parasite, however, is said to be itself destroyed by another hymenopterous insect, (*Pteromalus tabacum*), which deposits its eggs in the cocoons of the *microgaster*. Another species, forming an immense mass of loose, woolly cocoons, is also said to kill the caterpillar of the potato aphinx, and most probably attacks also that of the tobacco

worm in a similar manner. It is, therefore, of great consequence, when destroying the caterpillars by hand picking, to avoid crushing or injuring any caterpillars which appear to have either white floss or egg-like cases on their backs or sides, as these are the cocoons of a very useful insect, which if left undisturbed, would produce multitudes of flies, which would destroy an immense number of these injurious worms.

This is an important item and will well bear remembering,—not to kill a worm with little, white, egg-like substances all over his back. These are the cocoons which in time will turn into flies and help you destroy your enemies.

The hornets and an orange-colored wasp, taken by Walsh for a *Polistes*, devour the caterpillar when young and small. The best remedy, however, against these insects, is to poison the fly which produces either the potato or tomato worm by dropping a mixture of “blue stone” of the druggists, or crude black arsenic, into the flower of the Jamestown weed, or Stramonium, in the evening, when the fly will come and insert its long proboscis into the flowers, sip up the poisonous mixture, and die before depositing its eggs.

A correspondent finds it advantageous to cultivate a few plants of the Jamestown weed among his tobacco, and then to poison the blossoms as they appear, with the above mentioned liquid, every evening, and has thereby saved a great part of his crop uninjured. In Maryland some growers utilize young turkeys by driving them into the tobacco field, where they pick the worms from the leaves. Some planters also pay a small premium to children for the dead millers or flies, which are readily killed with a piece of shingle or board, as they hover over the flowers in the twilight of evening.

The number and consequent destruction of these pests depends much upon the season. I have noticed, if it be dry in the early summer—June and in May—you may count on not having many worms during the season, but if it be

very wet during those months, then along in July and August you will have lots of them, and this, too, just in the season when they do most damage. There are, as I have before told you, two crops of worms, one in May or June, when the plants are young and small, these deposit their eggs, go down into the ground as chrysalæ and emerge as caterpillars, hence begin the war against them early. The more you kill early when the plants are young, the fewer you will have in July and August to eat big holes in your large and beautiful and valuable leaves.

Remember, the first crop makes the second, augmented or increased more than an "an hundred fold," hence your duty is plain. It is a fact that planters are too apt to overlook or pay too little attention to this first worm crop. They are but the scouts or advance of the army to follow. Early work upon the tobacco will pay well, and the quest after worms is much easier when the plants are small than when the leaves have attained great size. Worm your tobacco, therefore, when it is young and do it diligently and thoroughly, leaving no worms to propagate a flock or herd for July and August. Go yourself into the patch daily; early in the morning or in the evening, or at least two or three times a week, send your young hands through the patch, or a good, careful adult hand. Look for larvæ—destroy it. Look for worm dung—a black, seed-like substance. Where you find it be sure a large worm is not far away. Turn up the leaves and hunt for him. Wherever you find leaves newly perforated, examine well that plant or the next ones; you will surely find the destroyer. Sometimes the worm may be found early in the morning at the root of the stalk, just at the surface of the ground.

Look for him well, on the top of the leaves and under. There are signs, which you will soon discover, of his presence, which in time will unerringly lead you to him. Young boys and girls soon learn to find him, and as they are active and nimble, they soon become effective workers after the enemy.

Many planters raise large flocks of turkeys for this special purpose, and they are most excellent aids in ridding the tobacco patch of the pest, but some contend that they destroy many of the largest and finest leaves in their search after the worms. They may be easily trained to the work. For a few days drive them into the patch every morning and they will very soon go there regularly of their own accord. Chickens, too, often seek the patch and seem to enjoy hunting after both worms and larvæ.

To sum up, however, in whatever way you deem best to combat this enemy of your crop, let your battle be waged in earnest, and never let up until you have conquered him, for if you do, you will find your crop will not only suffer severely, but if the worms be out in force you may lose all the results of your labor; every leaf being reduced to a sieve or a mass of ribbons, and only worth so much a pound as lugs, and very poor ones at that.

The recommendation in the beginning of this chapter, relative to the Jamestown weed (*Stramonium*) is good. "An ounce of prevention is worth a pound of cure." Cultivate some of these plants along your fences or through your patch. The big moth-millers will congregate about them in quest of food. Poison the blossoms. You will soon find plenty of big horn-blowers lying dead in the vicinity of these plants, and every one of these put out of the way is as good as having killed a hundred worms.

CHAPTER XII.

SUCKERING AND TOPPING.

Suckering is by no means an unimportant matter to be looked after, as upon its being well done depends, to a great extent, the size and weight of the valuable leaves. Suckers are small leaves or sprouts which shoot out from the stock

just above and at the junction of every leaf with the parent stem. These shoots are not alone valueless, they are an absolute injury to the balance of the plant, as they grow rapidly and if allowed to remain they draw to themselves nutriment from the plant which ought to go to the commercial leaves. They also tend to crowd the valuable leaves. They must be taken off. To do this go over your patch when they are about an inch or two in length. Do not use a knife but pinch them out with your thumb and fore-finger. Go over the ground as often as once or twice in a week. You will always find more or less of them springing out, and if the season be wet they will grow very rapidly. By pinching out the suckers and topping low you will secure large, fine and heavy leaves as the balance resulting on the stalk. In pinching off these suckers, commence at the top of the plant and go down to the lowermost leaves, being very careful to break none of the large leaves, as they are quite brittle and break easily under careless handling. Any leaves which you may turn over in your efforts, or which may have blown over by the wind, you must turn back again to their proper position. The sun shining upon the under side of the leaf will burn it in a few hours and injure both the texture and the color of the leaf.

TOPPING.

At the top of the plant a plume comes up which is called the seed bud. It generally comes into view in the middle States about the last of July or first of August. As soon as it is fairly out from the parent stem, so that you can lay hold of it, pinch it out—do not cut it off, as in that case it may bleed—the stalk will waste some of its substance. Pinch it out with thumb and fore-finger. The proper time for topping depends upon several circumstances. First, *Locality and Climate*. Second, *Variety of Tobacco Grown*. Third, *Quality of the Soil and Forwardness of the Crop*.

These points must all be determined by the grower himself. He will take into consideration, if he desires to grow large and fine leaves, or leaves of an average size and weight. If he intends growing twenty leaves to the stalk, then he must top so as to leave that number on the stalk, but if he wishes to grow but twelve or fourteen leaves then he must top low enough down so as to secure this result. Time of topping, as I have before said, depends first upon climate and locality, that is the grower may be in a locality where his crop will mature rapidly and come to seed bud early, say in July, first part, instead of August. In this case he must top when the seed buds appear and are of sufficient size.

VARIETY OF TOBACCO GROWN.

By this I mean the grower must top early or late, high or low, as the kind of tobacco demands which he is endeavoring to produce. For instance, is it tobacco for chewing or pipe smoking purposes, then he must top accordingly, taking off not the seed bud alone, but such of the upper leaves as will allow of the proper number below fully ripening. If the tobacco be for cigar purposes, then in that case top, and leaves enough with it, must come away to allow of the proper number on the plant which are intended to be forced to their utmost.

QUALITY OF SOIL AND FORWARDNESS OF THE CROP.

When, where and how often to top depends much upon the soil and vigor which the growing crop displays. I have said that from twelve to twenty leaves may be desirable on a stalk, but the soil may not be sufficiently rich nor the crop far enough advanced to allow of maturing even the minimum number of leaves. You cannot top all at once. You must go through your patch two or three times a week, or

daily if the crop be working rapidly ahead, and top all plants which are ready for beheading. They do not nearly all come to seed bud at one time. Another thing which in this connection, right here, is of paramount importance, and that is the necessity of securing your

SEED PLANTS

for the next year's supply of seed. This, in your topping operations, you must not overlook. Go over your patch and select a sufficient number of large, vigorous and symmetrical plants, which you must allow to stand untopped, that their seed buds may ripen for your future supply of seed. The number of plants which you will let stand must depend upon how much ground you may wish to plant in tobacco the following year.

Always select the largest and most fully matured plants for seed.

Two stalks will generally be found ample for the seed necessary for an acre of ground, if well ripened, and much of that will be to spare. It is safe, however, to allow two stalks of your finest, most fully matured, brightest, heaviest, and largest leaved plants to remain untopped for next year's seed. If the plant runs up very high, put a stake along side and tie it, so that in case of a heavy storm it be not blown over and broken. Do this to all those intended for seed, which have shot up to any considerable height, for if they be blown down and broken before the seed is ripe, it will be worthless.

Generally, after topping, your plants will be ready to cut in from two to three weeks, but this depends much upon the weather, and if the fall be early or late. If the fall be open, and no appearance of frost, and your crop growing vigorously, you may allow it to stand for a longer period of time, but these points I shall reserve for another chapter, merely adding, in concluding this branch of my

subject, that very much good judgment is to be exercised in the matter of topping, so as to secure a uniform and full ripening of all the leaves on each stalk. Cut so as to insure this result as nearly as you can.

CHAPTER XIII.

CUTTING AND HOUSING.

This is a very important point in the progress of tobacco as a crop, from the seed to the barn or dry house. Much good tobacco is ruined and lost at this stage, from lack of judgment as to its proper management and handling. Tobacco must be cut when fully ripe, and the point is to determine just when it is ripe. When the leaves begin to assume a mottled and yellow appearance, with reddish or brown spots, when they feel thick and sticky to the touch, and break easily when bent, then the tobacco is ripe and may be cut. In passing over your patch you may find that "here and there" plants have matured and are ripe, but the majority are not. Then, in this case, cut only the ripe plants and house them for the time. Another thing, you may find some plants which have leaves, both ripe and immature ones. Cut the lower ripe ones and allow the others to remain on the stalk. This only applies to the small farmer, he who has but a small patch, and can take the time to cut and string such leaves as may ripen thus early. The lower leaves ordinarily ripen before the upper ones, hence they are the first which will demand cutting and housing. These individual leaves, when cut, must be strung with a needle on pieces of twine, and then carefully hung in the dry house. They require much care when thus handled, as they are very brittle and break quite easily. Cut no more leaves than you can string and properly put away in the dry house

the same day, as they spoil if allowed to lie in the field. When the tobacco has been well topped, and topped low down, not too many leaves having been left on the stock, if the ground be in very fertile condition, the upper leaves should attain to or nearly the size of the lower ones, when the crop is ripe and ready to be cut.

FIELD SCAFFOLD.

It is requisite that every tobacco planter should erect a field scaffold on which to hang his tobacco as soon as cut.

Several methods of cutting and housing tobacco are pursued. Some planters, in order to insure a rapid drying out of their crops, always split the plant from top to base of stalk. This is done by taking an even and tapering-edged chisel and starting it at the top of the stalk, just where the seed bud had been cut off, and forcing it down to within a few inches of the ground. This must be done carefully, so as not to cut away the leaves. Then the stalk is cut off down close to the ground with a knife or tobacco chisel, and the plant hung astride a lath on the field platform, where it may be allowed to wilt until evening, when it is to be taken to the dry house, as its curing quarters. Some planters, if the weather be exceptionally fine, allow their tobacco to remain for days, and even weeks, on the field scaffold, and think that the partial curing there secured is a decided advantage to it. This may or may not be so; at all events I can see no impropriety in allowing your crop to remain on the field scaffold-ing as long as the weather is fine, but be sure you get it housed if a storm comes on or a long continued rain. This will surely injure your tobacco to a great extent, hence it is well, if your crop be a fine one, and the weather favorable, that you secure it in permanent winter quarters during the bright and dry weather. If your dry house be a good and well ventilated one, you may feel confidently assured of your crop curing as well, or nearly as well, as though it had

been hanging for weeks in the open air, subject to the action of the sun's heat.

And now to the subject of the field scaffold. This is easily arranged. The extent of your scaffolding depends upon the amount of land you have out in tobacco. You may, if you choose, utilize for one side of your scaffolding a good post and rail fence if it be convenient to your patch. Say you desire scaffolding one hundred feet in length, you will therefore have to use just that number of feet of post and rail fence. Make a trestle for every ten feet in length, and set them far enough from the fence to allow of your lath reaching from trestle to the fourth or fifth rail of the fence. If your lath or poles are five feet long, then your trestle, with the plank or pole laid from one to the other, running parallel with the fence, must be set about four and a half feet from the fence. In case you split your tobacco, you will hang it over your lath. If the lath be five feet long, you may put seven or eight stalks on each lath without crowding. Then place one end of your lath on the fence rail and the other end of it on the plank or pole which runs along the trestles, from one to the other. You will place the lath about twelve inches apart, and so fill up your scaffold. In cutting and scaffolding tobacco, as, indeed, in most any branch of industry, it is well to study the economy of labor. By a little systematizing in cutting and housing, much time and labor may be saved. Cut two rows as you go along the furrow and lay them together. A heavy knife, a chisel or a cleaver, such as is used for cutting corn, are very effective in cutting tobacco. Seize the plant gently but firmly with the left hand, bend it over and downwards, and then by one effective blow with the cleaver you sever the stock at the surface of the ground. In performing the operation, simple as it appears, you must exercise care or you will do much damage. A green, careless hand will do more damage, by breaking and tearing fine leaves, in a day than his wages would amount to five times over. An ex-

pert hand will go through the patch and drop row after row without doing any appreciable damage, hence at such a time it is always cheapest to secure the very best labor that can be had, and pay well for it. It is the large and finest leaves that are most frequently broken and torn, and they are commercially the most valuable.

There is another mode of securing tobacco to poles or lath, and that is, nailing each plant to a lath, by driving a small nail through the body of the stalk, at its lower end. In this procedure you may put about the same number of plants to each five foot lath as you would do in the split and straddling process. None of them, however, to my mind, possess the advantages that appertain to the knife and lath operation.

LATH KNIFE.

This is a spear shaped weapon or instrument. Its point is a gradual taper like a spear. The other end is cut off square. It is from five to seven inches in length, is made of highly tempered steel, and at the square end is hollow—a square hollow—made just large enough to admit of the end of a plastering lath fitting evenly and nicely into it.

The following is my mode of procedure: I have a small platform made which one man keeps constantly filled with tobacco plants. Along side of the platform is a pile of ordinary plastering lath four and a-half feet in length. I take a lath, run one end of it into the tobacco knife, and stick the other end into a crevice under the platform, which holds it firmly. I then take a plant and press the point of the knife through the stalk a few inches from its lower end. I then slide the plant back to the other end of the lath and then quickly take another plant, and more rapidly than I explain this, the point is run through the stalk, and the plant slipped back to within about eight inches of the

other one. I proceed in this operation until the lath is filled, containing from five to eight plants, according to their size. If unusually large I may lath but five or six on each strip, but if small I put on about eight, which gives ample room. When each lath is filled, or two are ready, an assistant takes one in each hand and carries it to the field scaffold. By the time he has placed them on the scaffold and returns, I have two others in readiness for him to carry to the same destination. In this way one man or boy keeps me supplied with plants, which I in turn so manipulate as to keep my assistant all the time "on the go" scaffolding the lathed plants.

Some planters prefer to cut their tobacco in the afternoon and allow it to lie and wilt over night. I can see nothing to be gained by this method. It is true, if the sun be very hot and you cut down your whole crop, and allow it to lie all day in the field, exposed to the sun's scorching rays, you will have some of it sun-scorched, but if you follow my plan and cut no more than you can work up during the day, allowing each row or two to remain on the ground for but two or three hours, it will be well wilted but not burnt. Of all the methods practiced for cutting and housing, I think that I can narrow it down to that which I have just narrated, to wit:

Cut when the crop is ripe. Let one man cut two rows at a time as he goes along. Let him use a small hatchet or corn cleaver. Then get you a good tobacco knife and throw aside the old method of splitting the plant and hanging it astride the lath or of tying or nailing it to lath, and pursue the method as I have laid it down. In my experience it possesses the merits of being less tedious, less expensive, less laborious and saves much valuable time. With the lath knife one man will string as much tobacco in a day as two men can do by the system of nailing it to the lath or poles on which it is to be hung.

CHAPTER XIV.

DRY HOUSE OR TOBACCO BARN.

In anticipation of the harvesting and storing away of his crop, the careful and thrifty husbandman will have secured and in readiness ample and safe quarters in which to store the fruits of his summer's labor. It is not an uncommon thing for farmers in Pennsylvania to build large and commodious barns and outbuildings for his crops and to stable and shelter his stock, many years before they consult their own ease and the comfort and convenience of their households. They suffer inconveniences and positive discomforts for years, by reason of their cramped and poorly ventilated dwellings, in order that they may rear imposing, and comfortable, and commodious barns.

Many of the large barns in tobacco districts of Pennsylvania, with their contiguous sheds and outbuildings, have of late years been utilized for tobacco as drying houses, in which they hang their tobacco to cure during the winter. Some fill their wagon sheds, some the caves of their barns, and for a long time, in Lancaster county, every conceivable nook and corner of sheds, barns, stable and house were utilized as space in which to store their yearly increasing stock of "the weed." In time, however, they began to build sheds and houses, and barns, specially adapted for curing a crop of tobacco. At first, the sheds were crude; simple affairs, but of late years they have been so constructed as to be greatly improved upon. Some of them are of immense size, and capable of holding many thousands of dollars worth of tobacco. They are also built now with a view to the sorting and stripping, and general handling of tobacco, and also to the comfort of the workmen who handle the plants during the winter and early spring.

To one who purposes engaging in the planting of tobacco, it behooves him to first see to it that he has quarters ample enough to store his crop when harvested.

Tobaccos of the various kinds, for pipe, chewing and cigar purposes, are cured in different ways, hence they require different quarters to perfect them for sale. Thus there is first *sun cured tobacco*. This is a tobacco used for chewing purposes, and the bright sun cured wrapper is a tobacco cured by being exposed to the rays of the sun, in the open air, which gives it a brilliant golden yellow color, and makes it greatly in demand as a wrapper for fine plug tobacco. I will explain this process in full under the head of "Curing Tobacco," the chapters devoted to that branch of the subject will be very full, suffice it to say that this brand of tobacco is cured either in the sun or open barns exposed to the bright and heated atmosphere. Another variety is *air cured tobacco*; and still another *fire cured tobacco*. These two, then, always require buildings in which to house them, and put them through the process of curing. I will in this connection merely confine myself to the manner of buildings required, and will first give you my plan for an air curing barn or shed, one to which the plants are to be carted from their platforms or scaffolds in the fields.

The size of your barn will of course depend upon what is the extent of your tobacco crop. We now speak, of course, of a house for air curing, and will take one with capacity of storing about five or six acres of tobacco. First, then, location. Do not build your barn in a damp or wet place, or where it will be sheltered on one or more sides by woods or other barns, or buildings, but select if you can a warm, sunny, southern slope or exposure, where it will receive the morning sun, and when its doors and windows are thrown open, will secure to its contents a full and free ventilation or circulation of air. This is an all important consideration, because tobacco is made up largely of water, which you wish to evaporate or drive off rapidly, and to do this you must have a free ventilation. When you have selected a situation suitable for the purpose, we will proceed to erect the necessary barn, and will suppose it to be two

stories high, dimensions liberal, say fifty feet long, thirty feet wide, and about thirty feet from foundation to roof. The lower story will be a basement, and with good walls from the ground to the floor above, thus giving you a large walled cellar room or basement. In one corner of this room you may have a chimney and a stove, which will make the room comfortable in the cold wintry weather when you are engaged in stripping and packing your crop. Let the floor above be a good light one, made of plowed and grooved boards. In the roof have two good ventilators, which at liberty you can open and close as you may wish. On the floor above, the sides of the building must be made of sixteen feet long boards, fully twelve inches in width. Let them be put on running up and down, from floor to roof, and not running horizontal or lengthwise with the house. Every third board should be hung on good strong hinges, so as to allow of being opened and shut at will. Some growers hang every other board on hinges which may be done or not, at your option, although I think every third board as a window will secure full and free ventilation for all purposes. You may have at each end of this barn double doors, large enough to drive in and through with a two-horse wagon.

In one corner of the upper room you may have a communicating stairway and door with the basement below. To the side of the room, and near the middle of the building you may have a hatchway, down which to drop the tobacco into the basement when the season arrives for stripping. The arrangement of this upper room will be entirely with a view to securing every available foot of space to be utilized for storing tobacco to undergo the "air cure." To do this you must first determine what sized lath you intend using to string your tobacco upon. Let it be a lath four feet long. Now commence way up in the roof, at the top or comb. Run strong and durable roofing lath from side to side, just far enough apart to allow of

placing a lath between two of them, with one end of the plastering lath on one roofing lath, and the other end of the plastering lath on another roofing lath, and so on until you have filled out the space above. Then come on down, arranging your platforms or scaffolding strongly and durably, and wasting as little space as possible. Then from the floor ascending to the ceiling there must be two rows of posts, which will allow of space between them sufficient to allow a team to pass from one door to the other through the middle of the building. Then scaffold above and on each side with good sized poles or sawed plank, strong enough to hold the weight that will be put upon them, always bearing in mind that green tobacco is by no means a light material, but on the contrary is very heavy and will require strong timbers. In arranging your cross bars on the scaffold do so with an eye to the four or four and a-half foot lath which you intend using. You will arrange in this space about four tiers, one above the other. The centre space you can always utilize by having portable staging or scaffolding, which you may put up after the room above has been filled, and the sides also, when there will no longer be a necessity for driving the team through the building. The last tier should hang down just far enough so as not to reach the floor, and the tiers above should not encroach one upon the other. You may arrange each one so as to be about four feet from the other. This will allow of the plants hanging so that one tier will not encroach upon the other, and likewise allow of a free sweep of air through the whole mass. You must arrange several long board walks on each tier so as to allow of your passing along and hanging the lath in their places, and you must also have some kind of a ladder or elevator by which you can go up and down, and carry the loads of lath, weighted with their burdens of green tobacco. This you will have to accomplish as best you can by the power of your own ingenuity.

In fair weather your board windows must always be kept open, and in stormy and rainy weather they, the doors and all ventilators must be closed so as to exclude the wind, rain, and damp atmosphere.

FROM FIELD TO BARN.

When your barn is ready you may begin housing your crop. To do this a wagon is necessary, and a wagon for that special purpose adapted. Take an ordinary strong two or four horse wagon and couple it long, take off the box or bed and lay strong boards about twelve feet long on the running gear. Make a little railing at the sides about twelve inches high, then drive to your scaffold in the patch, take your lath from the scaffold, and lay them on the wagon bed, the lath towards the wheels, and the plants laid nicely and evenly upon the wagon bed. Arrange a row of lath on each side, and build up just as you would do if loading bundles of corn fodder, the butts pointing out and tops and blades in the centre. Keep on building until you have a layer about two and one-half feet in height, then drive to the barn. Always keep your own eyes upon this process of loading and unloading, for just at this time will you sustain much and severe damage by careless and inexperienced handlers, breaking, bruising and twisting the leaves, if you are not on hand to insure care and attention. When your tobacco is being hung in the barn, see to it that the lath are placed regularly in distance one from another, not too far apart, or that will waste good space, and not too near, as that will cause the tobacco to mould and rot. Lath may at first be placed about nine inches apart, which as the tobacco dries may be decreased, you may move them closer and thus make room for any late tobacco you may have, or a possible second crop. I have housed this year, it being an exceptionally fine fall, a late crop and a second crop, each of which is equal to my first crop. My second crop will this year pay the expense of the first.

FIRE CURE BARN OR COAL CURE SHED.

Fire cured tobaccos are nearly all for chewing and pipe smoking, snuff and cigarette purposes. These ordinarily require bright brands of tobacco, and this color is generally most surely secured by hot curing, either by the rays of a hot sun or artificial means. The latter is most generally resorted to. I will first describe the

COAL CURE SHED.

Major Robert L. Ragland, of Halifax county, Virginia, gives his description of a fire or coal-cure shed, in a little pamphlet on the curing of fine yellow tobacco. He says: mind, do not be in a hurry to cut your tobacco before it is fully ripe, and enough of it fully and uniformly ripe to fill a barn. (He calls a building twenty feet square a barn). Cut the tobacco of uniform size, color and quality, putting about seven medium-sized plants to a four-and-a-half foot stick. Let the plants go from the cutter's hands into the hands of a holder, who will serve two cutters. When the stick is filled it should go directly, without touching the ground, on a wagon, to be carried, when loaded (not too heavily) to the barn. It will take from seven hundred to eight hundred sticks of tobacco to fill a barn twenty feet square, with five rooms, and four firing tiers below joists, placing the sticks about ten inches apart, the proper distance for medium tobacco. As soon as the barn is properly filled, and the tobacco regulated on sticks and tiers, fires of coal or hickory wood should be built in the barn, four fires in a row under each room, thus giving twenty fires to a barn twenty feet square. If hickory wood be used, let it be sapling wood, cut about two feet long, and green or partially dry. Next to coal, hickory furnishes the best yellowing heat. (A barn twenty-four feet square will hold about two and one-half acres of tobacco.)

FIRE CURE BARN.

Be it remembered that fire cured tobacco applies not to the leaf intended for cigars, but only as represented on a preceding page, to chewing and pipe tobaccos. My plan for a fire cure barn I will now place before my readers. It is simple, sure and has this merit, it is comparatively inexpensive, as there is no costly machinery connected therewith, there is no patent upon it, nor have I ever applied for one; and yet all who may give it a fair trial will find that it answers every purpose. The principle involved in curing chewing tobacco is simply this: how to drive off the water quickly from the tobacco, and secure and hold to it a brilliant golden yellow color. This must be done by heat. I do it as follows:

Build your barn twenty-four feet square, with a lower room or basement. Build it with good lumber and very close, so that there be neither knot holes, cracks nor cranpies in it. Let the roof be made as close as possible, and every crevice closed up. Have a chimney built up at one end of the barn with two flues in it. Secure a large coal stove, of the Egg pattern, or an ordinary furnace for the cellar or basement, and place it there. Stand this stove next to the chimney with a pipe leading into one of the flues to carry off the smoke and gas. Then at the other end of the building cut a register in the floor leading up into the room which is hanging full of tobacco, from floor to ceiling. On that floor cut a register, down at the floor, into the other chimney flue. The heated air coming up through the register in the floor, from the furnace or stove below, will rapidly ascend to the ceiling or roof and disseminate itself all over the top part of the tobacco room. As the heated air keeps rushing up and through the register in the floor, the cold air is rushing out of the register into the chimney flue. More hot air keeps coming in and spreading itself through the tobacco, gradually but surely forcing the

cold air in a regular solid body down to the floor and into the chimney flue, until at last you see what takes place, the cold air has all been forced out, displaced by the heated air which now fills the building and surrounds every plant of tobacco. Well what next? Why this: the room being filled with heated air, and more coming, it begins to pass into the flue, and so you have established a current of hot air, which fills the house and is passing out and up the chimney, every particle of it being more or less heavily charged with moisture obtained from or absorbed from the heavy, water laden tobacco plants.

This process goes on and on until your tobacco is cured, being of a beautiful, bright golden color, such as is held in great esteem for wrappers of fine tobacco for chewing purposes.

This apparatus or hot air barn will appeal at once to the scientific and practical man alike, both from the correct principles involved and its simplicity, from its being perfectly safe, at least as safe as a stove in your house, and because of its inexpensiveness. It also saves much trouble, many fires and much vexation and loss. Keep a thermometer in the room, and you can regulate the amount of heat required to a nicety, and cure your tobacco in a week's time, which is a great matter, when one has large crops. When one barn full is cured you may take out that which has been cured, and fill again with green material.

This hot air room, while it is specially adapted to the curing of chewing and pipe tobacco, is not by any means inapplicable for the treatment of cigar leaf. If the heat be regulated to a nicety, and be not too great in the initiatory stage, if you increase it gradually and force fresh air into the room at intervals, you will secure a color and quality that will vie with the best in the market. I have treated Pennsylvania leaf by stove heat and have produced fine dark wrappers, such as are always in demand, and bring the best possible prices. What is wanted in chewing

tobacco is to secure to the leaf plenty of gum, wax and oil. In cigar tobacco none of these qualities are desirable; on the contrary, you wish to secure a delicate, silky leaf, but without lustre, and one that will burn with a white ash.

There are chemical points laid down for observance in curing cigar leaf which are of major importance—for instance, the mere matter of the prevalence to a greater or less extent in cigar leaf of the Chloride of Potassium and the sulphate, nitrate or Carbonate of Potash. On the presence of these depend the burning qualities. The only real, substantial, and thoroughly reliable test for cigar leaf is the fire test.

The experiments made by Schloessing in connection with the French “Regie” were most interesting and instructive to tobaccoists and growers of the weed. He showed that whenever the *Sulphide of Potassium* was present in cigar leaf it was not combustible, but when the *Sulphate, Nitrate and Carbonate of Potassium* were present, then it gave a burning tobacco of the first quality. As to other tests, and how to treat the leaf bearing upon the presence or absence of these various salts, I will give a fuller explanation in the chapters on “Curing Tobacco.”

CHAPTER XV.

CURING AND STRIPPING.

Having described the various buildings required to house the different grades of tobacco, I propose now to tell you of the best known methods for curing cigar and other leaf tobacco, and I purpose first giving you the OPEN AIR METHOD for chewing and pipe uses. The sections of country where these plans are practiced, and where we get the most of our plug tobaccos, are the States of Kentucky, Missouri, Virginia, North Carolina, Tennessee and Indiana. There are

other sections, but their products are, in a commercial view, insignificant. Much of the fine plug wrapper produced in North Carolina, and parts of Virginia and Kentucky, are cured, as I have mentioned in a preceding chapter, by hanging the plants on scaffolds in the field, and exposing them to the rays of the sun and a heated atmosphere, or else sheltering them in a shed, simply a roof, on long, strong posts, without ends or sides, open all round, allowing the warm Southern breeze to blow through and over the contents. This mode of curing their light tobaccos is very effective, and if the season be favorable, it cannot be improved upon. The leaf produced in certain counties of North Carolina is a very light, mild and fragrant tobacco, and when thus cured the product is of a brilliant, golden color, with a polish or lustre. This, therefore, has become very celebrated, and is much sought after by manufacturers as an outside wrapper for their highest grade plug tobacco, and it commands the highest price of any brand of the kind in this country. This golden tobacco is also being manufactured into fine pipe smoking tobacco, and with cheroot manufacturers is also very greatly in demand.

FIRE OR COAL CURED TOBACCO.

This, as I have before stated, applies almost entirely to plug, pipe, or cheroot tobaccos, and is very popular in the southern or south western States. There seems to be two or more objects attained by curing in this way, expedition in getting the crops ready for market, and also securing to it the greatest possible amount of wax, oil and gum, thus giving added weight to the commodity. I do not mean that fire produces these elements, for they already exist in the plant, but by fire curing a quick chemical change takes place which will not allow of any of the ingredients, which enter into the production of wax, oil and gum, passing away or being destroyed.

There is one very desirable point to be gained either in air cured or fire cured plug tobacco, and that is securing and *fixing* the color. The color desired is a golden yellow, and you may obtain that and lose it, hence it is desirable that you get the color and "fix" it so it will "stay," as they say in Kentucky. To secure these points in "air cured" requires certain conditions of atmosphere and temperature. The tobacco should hang on good scaffolding where it is not subjected to any commotion, rain or wind storms, and the air should range in temperature at about sixty to seventy-five degrees. On very hot days, the sun beating down heavily may dry it too rapidly, the rich color depending upon a slower evaporation. You may obviate this at such a time by crowding your tobacco somewhat, and if not under roof, by covering it. When the causes which have been operating adversely pass away, then you may place your lath or poles filled with plants in the same position they before occupied. After having been subjected to the sun and atmosphere for about a week, without covering, you may then remove it to an open shed where it can hang without crowding. Give it plenty of light. Tobacco will not cure a brilliant yellow without plenty of light. In setting the color it is very important that there be warm and bright weather directly after cutting the crop. If there be a cold wet "spell" of a week or two soon after cutting your tobacco, it will acquire a dull-dead appearance which no after attention can obliterate, hence the desirability that your crop be an early one, so that in open air curing it, you may have the advantage of the warm early fall months. I think it is now generally conceded that for all purposes, the earlier you can ripen and harvest the crop of tobacco, the more certain you may feel of having it satisfactorily colored and cured.

I have now shown the contingencies which attend the curing of unhoused or non-fire-cured tobacco.

The fire cure escapes these in a manner, but with it 'tis by

no means plain sailing. It is, if anything, liable to more and very serious accidents except it receive the closest care and most vigorous circumspection. The very names *fire* and *barn* suggest danger, which is always augmented if coupled with careless and irresponsible employees. Hundreds of planters annually have their sheds or tobacco barns, with their contents, destroyed by fire, by entrusting the care of the firing-up to their negroes and careless white laborers. This point, therefore, deserves merely the caution to the planter himself to superintend in person the fire cure barns.

Major Ragland has described his barn, which is twenty feet square, in which he has twenty fires burning under five tiers of tobacco, four fires in a row on each floor—four coal or hickory wood fires.

A cool night, a sleepy negro or two, a dance or camp meeting near by, twenty fires left to care for themselves, the tale is soon told, a pile of ashes in the morning, and the planter's crop gone off in a puff of smoke before its time.

He says "the first step in curing is called the steaming or yellowing process. Medium tobacco will require about thirty-six hours steaming at about ninety degrees Fahr. to yellow sufficiently, but tobacco with more or less sap, larger or smaller, may require longer or shorter time to yellow. Here the judgment of the curer must be his guide. Inexperienced planters would do well to secure the services of an experienced curer. The planter saves in the enhanced value of his crop many times the money paid to the curer; and besides, by close observation, he may learn in one season to cure well himself. Theory alone, and directions, however good and minute, will not do here, but it is practice that must qualify one to cure well.

The next step in curing yellow tobacco is called *fixing the color*. When the tobacco is sufficiently yellowed at ninety degrees Fahr., the best leaves of a uniform yellow,

and the greener ones of a light pea green color, it is time to advance the heat gradually but cautiously.

Keep the heat from ninety to ninety-five degrees Fahr., say for about one hour, then run up from ninety-five degrees to one hundred degrees, keeping the heat between those figures for about *two hours*, observing to let the mercury descend a little every time after raising, before putting on more coal—coal only should be used now. This is done to prevent sweating the tobacco, a continuous heat operating more to do that than a fluctuating one, as described. Should the tobacco get into a sweat at this or any future stage, which is indicated by the leaf becoming damp and limber, as though partially scalded, raise the fire a little, and open the door; this creates a current of heated air that will soon dry out the leaf. The thermometer may fall even *ten degrees* here without injury to the color. It is advisable, however, that the tobacco be kept free from sweating, if possible. Next advance the heat, running from one hundred to one hundred and five for about *two hours*. When at one hundred and five degrees, you have arrived at *the most critical point* in the difficult process of curing bright tobacco. The condition and appearance of the tobacco must be the curer's guide. No one can successfully cure tobacco till he can distinguish the effects of too much or too little heat at this important stage. I will try to explain what is very plain to every experienced curer, but unknown to the beginner.

Too little heat in fixing color operates to stain the *face* side of the leaf of a dull Spanish brown color, and is called *sponging*, and may be known to the novice by its effects being visible only on the *face side*; too much heat reddens the leaf, first in spots, visible on the edge of the leaf, redder than the former, and visible on *both sides* of the leaf. Now, to prevent sponging on the one hand, and spotting on the other, is the aim of the experienced curer. Therefore, no definite time can be laid down to run from one hundred and

five to one hundred and ten degrees. Sometimes one hour is sufficient, sometimes three is fast enough. The same may be said in running from one hundred and ten degrees to one hundred and twenty degrees. While it is usual to advance in this stage about five degrees every two hours for medium tobacco, the condition of the tobacco often indicates to the practiced eye the necessity for slower or faster movements. Remember, not to advance over one hundred and ten degrees till the tails begin to curl up slightly at the ends.

Arrived at one hundred and twenty degrees, this is the *curing* process. The heat should remain at or near one hundred and twenty degrees, till the leaf is cured, which takes from four to eight hours, according to circumstances. When the leaf appears cured, advance five degrees every hour up to one hundred and seventy degrees, and here remain till stalk and stem are cured. To run above one hundred and eighty degrees is to endanger scorching the tobacco, and perhaps burning both barn and tobacco. To recapitulate:

<i>First</i> , Steaming or yellowing process,	90 degrees for 36 hours.
<i>Second</i> , Fixing the color,	90 to 95 degrees for 1 to 2 "
" " . . .	95 to 100 " 2 "
" " . . .	100 to 105 " 2 "
" " . . .	105 to 110 " 1 to 3 "
" " . . .	110 to 115 " 2 "
" " . . .	115 to 120 " 2 "
<i>Third</i> , Curing of leaf,	120 " 4 to 8 "
<i>Fourth</i> , Curing stalk and stem,	120 to 170 " 5 deg. per "

and continue at one hundred and seventy degrees till stalk and stem are thoroughly cured.

After curing, as soon as the tobacco is sufficiently soft to move, it should be run up in the roof of the barn and crowded close. If warm, rainy, or damp seasons occur soon after, dry out the tobacco with coal fires, remembering to commence with small fires, as when curing, and gradually raise them till the tobacco is well dried. It is important

to attend strictly to this, for if your tobacco is cured yellow, it will not remain so if, soon after curing, it is suffered to get in too "high order," that is, absorb too much moisture. When ready to strip, it should be assorted well, the several grades put together, making about three grades of leaf, and two of lugs. Tie in neat bundles five or six leaves of "leaf," and eight to ten of "lugs." Place twenty-five bundles on the stick, and strike down as soon as stripped, unless in too high order. But it is not safe to permit tobacco thus struck down in winter order to remain down longer than 1st of June. Watch it closely to preserve from injury. It is better to market in winter order than to hang up in the dry and be "re-ordered," for tobacco once bulked down and then hung up in the barn again loses that sweet, mellow flavor so desirable, and never regains it when prized.

Pack neatly in tierces, (half hogsheads making the best and most economical), to weigh from four hundred to five hundred pounds nett. Take care that the tobacco be not pressed so as to stick together or be bruised; and let each tierce be filled with tobacco uniform in color, length and quality.

In connection with fire cured tobacco I may mention that there has been patented an apparatus for curing tobacco rapidly by heat. It is called Bibb & Company's patent firing and curing apparatus. Personally I know nothing of this tobacco furnace.

It is thus spoken of in the U. S. Agricultural Report for 1867: "The apparatus is not costly, and will pay for itself by the increased value of ten hogsheads, or, in some cases five hogsheads. Ripe tobacco, by it is admitted to be worth in the market, twice as much as if air cured. It is highly recommended by all who have used it. It saves the expense of large barns, by effectually curing the tobacco in a few days, when it can be taken down and removed to convenient sheds, or pushed to the outer sides of the house and stowed as close as possible without danger, for it is thoroughly

dried, and the house can be again filled, and thus the curing of the crop goes on until all is secured. With this apparatus they claim the tobacco can be brought into the proper state for stripping and preparing for market at any time, by means of the warm vapor it produces when arranged for the purpose. Any person of ordinary intelligence can manage it. So safe is it from danger of fire that many careful planters use it without fear in houses surrounded by wheat and haystacks."

This, then, is what is claimed for Bibb & Co's apparatus. Doubtless it answers the purpose well, but I am at a loss to see wherein it differs in principle from my own fire drying room. As before stated, the principle involved is the driving off of the superabundant moisture which the plant contains. My room has two flues, one receiving hot air and the other dispensing with it. My heat generator is in a basement room below the tobacco room, and always keeps that quarter warm and comfortable for any purpose connected with the business.

The Bibb apparatus requires a close barn or room. At one end of the barn the furnace is located, set upon a wall or foundation of brick or stone. At the opposite end of the barn, on a line with the furnace, the furnace has a large drum, which receives and dispenses heat through and by means of a series of large pipes. These pipes conduct the heated air to different points of the building, and the quantity required may be regulated, increased or diminished at will, by dampers in the pipes and draft door. In using this apparatus on a crop of ripe tobacco, they start in with a heat of eighty to eighty-five degrees, this not to be increased for forty-eight hours. At that time, if the yellowing process has well commenced, increase the heat to one hundred or one hundred and ten degrees, and in twenty-four hours the tobacco will be well yellowed, when the heat should be increased to one hundred and twenty or one hundred and thirty degrees, maintaining this heat by night and

by day, until the tobacco is well cured. It is claimed that a barn filled with ripe tobacco may be thus cured, ready for market, in the space of not exceeding five days.

I will now take leave of the subject of the houses and apparatuses used in the various treatments, which is given to the different kinds of tobacco, and shall confine myself to the methods proper of

CURING, STRIPPING AND BULKING.

We will now consider tobacco in a barn, without fire. It has been well ripened in the field, and during fine weather taken to the dry house where it has been hung up in tiers, one above the other, until the house has been filled. It has not been hung too closely or crowded, so that it would "house burn" or rot, but just close enough so as to allow of a free ventilation throughout the mass. The fall and the winter have been favorable, and your crop has been curing nicely, so that along about February or March, (sometimes in January), you find it is all well and nicely cured and you are ready for stripping. I wish to impress upon my readers right here, that in the matter of stripping and sorting the crop, very good judgment is required and care, because it is then in your power to so select and arrange the various "leaves" and "grades," as make a very decided difference, either one way or the other, in the amount of money you will receive for your crop. A good leaf, a poor leaf, a whole leaf, a half leaf, a perfect leaf, a perforated leaf, a dark leaf, a light leaf—all these "leaves" have their respective places, and upon their being so arranged and grouped, each to its fellow, like to like, will give character to your commodity, and weight to your purse. See to it, then, that you have a good and entirely efficient corps of workers at this time to handle your crop.

SORTING.

Cigar tobacco is usually graded or sorted as follows: Wrappers, seconds and fillers.

It is again subdivided as to quality, color, &c., as first quality, second, third, fourth and fifth. The value of wrappers, either for cigars or plug tobaccos, depends upon the color and general perfection.

For plug tobacco, the wrapper should be in texture, delicate, silky and tough, and of a brilliant, golden color; that for cigars should be, in order to meet most general approval, of a dark brown, even and smooth, with small, delicate ribs. When my tobacco is thoroughly cured, which generally happens in February or March, I select a mild, damp day, after we have had a day or two of drizzling rain, in which to take down and handle my crop. I take hold of a handful of the leaves on a plant and I find them soft and pliable, as a kid glove or a silk handkerchief. Now is the time for work. Set into it with a will and have a boss eye everywhere. Take the lath down from their winter rest and relieve them one by one of their burthen. Place each plant on a heap, with the stalk ends all facing one way.

Three men can now do the stripping. One takes up a plant and holds it by the butt in his left hand, whilst with his right he strips off all the bottom or ground leaves, and all that are ragged and badly torn. He then passes the plant to his neighbor, and takes up another plant and treats it in the same way. When he has a small handful, what in weight would be four or five ounces, he takes a leaf and wraps it around the upper part of this handful of leaves, for three or four inches, and then tucks the end of this binder leaf into the middle of the bundle. This is a hand, a culler hand or "lug." The next man takes the plant which has been under treatment by the first, and strips off all the upper small and imperfect leaves, which you will treat just as your neighbor handled his lug, make a bundle or hand of about a quarter pound, and tie it round with a leaf for a wrapper. This "hand" place on a separate pile of seconds. Now then, you come to the last leaves on the

plant, and if you wish to acquire an individual repute for excellence in the assortment of your product, instead of tying them all up into hands as "Firsts," or selected wrappers, you may further assort this first quality with a view to both size and color. My plan is this, and I will tell you why: I know planters who had been in the habit of selling all their "Firsts," or best quality, without sorting colors. They receive from eighteen to twenty-five dollars per one hundred pounds, without sorting. When they sorted they received as high as forty dollars per one hundred pounds for the finest dark wrappers, and from fifteen to twenty-two dollars per one hundred pounds for the balance of their "Firsts," always making a gain on their product of first quality by the sorting process, of seven or eight dollars per one hundred pounds. Now then, let your best man, "Sorter" number three, take from the plants which have passed through the hands of number one and number two, all the darkest brown and most perfect leaves, and as uniform in size, texture and general elegance of appearance and fineness as he can secure, and then place the plant aside. Let him take another plant from his neighbor and go through the same proceedings, until he has secured enough leaves for a hand. He will smooth out all the wrinkled leaves and have the ends evenly brought together at the stems, and then with a nice fine leaf, he will, with extra care and dexterity, make a "hand," in keeping with the super-excellence of the material.

This is the very best which any "ranche" can produce, and will command the highest price.

Always remember the greatest exactness is required in this first quality as to color, uniformity of size and perfection of leaf. Through carelessness slips in a leaf or two, here and there in a hand, of a different color, smaller size, or with a hole or a slit or two in them, and it will deteriorate your whole lot. Buyers will surely detect them. Their eyes are very open. They look for imperfections very

closely, particularly when perfection is claimed, and one or two dollars worth of imperfect leaves may vitiate a lot worth many hundreds, or cause a depreciation in the price to a very considerable extent.

Your second assortment will be also first class or "Firsts," differing not in size but in color. Select the largest leaves of a uniform size, and of a light brown color, and make into hands as before. You may even select a third color if you choose and wish to secure a reputation for excellence in assorting, and it will pay you well. This will be a lighter color than the second, but in size and quality the same.

You will have left as a residue much fine tobacco which will require further sorting.

You may make up hands containing very fine dark wrappers, fine and perfect but not so large. These will bring a fine price. Next you have still smaller leaves, and leaves that have been torn or perforated. These must be made into hands for "binders." Very small leaves, badly torn leaves and ground leaves, as has been before referred to, will be made up into hands or "lugs" which are used by manufacturers as fillers, that is the entrails of the cigar. This quality commands the lowest price, and is often a drug in the market.

BULKING.

When you have finished assorting your crop, you will have to put it through a further process of curing before packing it into bales, cases or hogsheads for market. Select a cool and dry place, and spread down a few boards upon the ground, provided there be no board floor to the barn. Take the bundles, one at a time and smooth them out; then commence to build a bulk, laying the hands side by side, the leaves to the centre and the butts pointing out. You may build this pile two or three feet high. Then

place over it a bundle of light rye straw, and lay a few boards on top of this. Watch and examine it well so that, in case the weather be damp, you may at once discover if it be heating or getting into too "high" condition. If this be the case, open it up at once and turn it over, giving it a good airing. If you allow your tobacco to mould while in this condition it will be fatal to your hopes; your crop will be well nigh valueless. When your tobacco has become thoroughly dry or well seasoned, has a strong and sweet smell, without mustiness, it is ready for prizing or packing, in which shape it is ready for the market, or to be placed in a warm and dry warehouse or barn to undergo the sweating process. This sweating process is a chemical change which all cigar tobacco must undergo before it is available for manufacturers' purposes. It is an important operation, but one with which the grower, as a general rule, is not much concerned. His crop is sold in the early Spring, directly after he has stripped and packed it. Then the middleman or buyer comes in and relieves him of the result of his year's labor.

PRIZING OR PACKING.

Your tobacco has been well cured, stripped, assorted and bulked. You now wish to send it to market, and there are several ways of doing this. You must pack it into hogsheds, bales or packages. A good lever is necessary in this case in order to pack it down very tight and hard. You may fix your lever to a tree or a strong post, into which you have bored holes and driven heavy pins, about ten inches apart. Then place your hogshed alongside the lever, and bring out a pile of tobacco which has been sorted. Put only one quality of leaf in each bale or box. Begin to place the tobacco in the middle first, laying two layers of "hands" with the leaves pointing in and the butts pointing out. Then two other layers around the

edge of the hogshead, leaves to centre and butts towards the sides or edges. When you have placed in about one hundred pounds (from fifty to one hundred pounds, according to the size of the hogshead) then you may use your lever to press the mass firmly together. Proceed in this manner until your hogshead is full, containing ten or twelve hundred pounds. These packages are sometimes put up weighing even as high as two thousand pounds, but it is not so good to make such a weighty one, and for several reasons. The first is the great difficulty of handling, and secondly, by over-pressure the tobacco blackens and is thus injured in quality. When you have your hogshead about half full, allow the press to remain on for several hours so that the mass may be well settled. Do this likewise when you have it full. You may place in the bottom of the barrel or hogshead a layer of clean and dry rye straw on which you build the tobacco heap. See that your hogsheds are well made and strong. Place the head in position and your tobacco is ready for the warehouse.

SWEATING.

This is a chemical process which the plant must undergo before it is ready for the manufacturer's use. With this process the grower ordinarily has nothing to do. The warehouse man or wholesale tobacco merchants buy from the planter in early Spring, and convey it to their large curing houses, where it is further sorted to suit their trade, and packed down again to be sweated during the summer months. Some planters, however, are now beginning to hold their tobacco from one season to another, just as farmers sometimes hold their grain crops for higher prices. In order to do this you will have to pack and sweat it, and I will explain how it is to be done. There are several ways.

Some packers bulk their tobacco on large piles of five

or six tiers of hands, in a warm, dry room, allow it to remain there five or six weeks, in the meantime handling it often whenever it gets warm, placing the outer plants in the centre, and the inner plants on the outside of the heap, thus insuring it a uniform sweat. It is then taken down and packed in boxes, and allowed to stand in the warehouse for five or six months, when it is ready for the manufacturer. Some packers allow it to remain in bulk, conditioning for this length of time, and then pack for market. Others assort and pack it as soon as received from the grower, and allow it to go through the process of sweating in these same boxes or hogsheads. During the curing, if the tobacco be too dry, you may take a bucket of warm water and dip a broom into it, with which you may sprinkle the mass, turning it over and over to moisten the whole lot. In Cuba and among some packers in this country a fluid is specially prepared for this purpose. Sometimes it is water in which tobacco had been soaked. Among Cuban packers it is a common practice to use rum or a highly aromatic wine, peculiar to the island, to sprinkle and season their fine leaf. This is now much resorted to among tobacco-nists when they wish to disguise a rank and musty or ill flavored tobacco. A decoction is also much used to give the native brands of tobacco the peculiar and delightful aroma of the Cuban article. The materials much in vogue are the vanilla and tonka beans, the fluid extract of valerian and highly flavored herbs which are steeped in aromatic wine and then sprinkled upon the tobacco, which is to be made up.

When your tobacco has been packed do not keep it in a damp place. If you have a good, close, dry house, keep it there or in your barn, on a floor, not upon the ground, as it will absorb moisture and mould. If you have been so unfortunate as to have kept it where it absorbed moisture and moulded, in this case it must be taken out and hung up to dry, and then repacked. Packing your tobacco in hogsheads

is generally known as prizing for market. This is practiced much more in the Southern tobacco states, where the grade is for chewing or pipe purposes, than in Northern districts where seed leaf is grown, that which is used for cigars. In these places, and for cigar tobacco, the packages are smaller, generally bales and cases, containing from one hundred to five hundred pounds each. Many growers use strong boxes, about four feet long, two and one-half feet high, and three feet wide. In this box the hands are laid, butts pointing toward the side, leaves lapping each other in the centre, and arranged thus in layers, very evenly, until the case is filled, when a lever is put to it with weights and well pressed down, then filled again, and pressed until the box is full of packed tobacco.

This case is now ready for market, or may be set aside in a proper place for sweating. Another mode is the bale. This is done by making a box without a bottom or top, which you use as a mould, filling it with tobacco, (having some long straw bands underneath the mass and running up the sides), press it very hard with weights and lever, and then take off your box mould. It then has and retains the shape of the box. You tie the rye straw bands around it and have a compact, square bale of tobacco, which you may transport to almost any point. For fine cigar leaf, however, the case, holding from three hundred and fifty to four hundred pounds, is the best mode of preparing your crop for shipment. When preparing to pack your tobacco in hogsheads, bale or case, if you find it has become somewhat dry you will then have to give it a light sprinkling of warm water, and allow it to remain in bulk for a day or two, until it is in good condition for handling. I would say here, as I took occasion to caution growers, when on the subject of assorting, be careful, be neat, be particular. Very much depends upon this, when you want to find a buyer, with a good price for your product. Nice and well made bales or cases, well assorted hands, neatly and regularly packed, lying smoothly

in the case, all these things strike the buyer favorably and will pay you well. You may have a brag lot of tobacco, none better in the market, but if you ship in bad shape you will find plenty to cry it down, and your crop will be sent below the ruling price, simply for the want of a little extra attention when packing. In getting it ready for market, then, I would sum up by saying assort and pack your commodity in the best manner possible.

CHAPTER XVI.

GENERAL OBSERVATIONS.

I have now taken my readers from the seed to the warehouse. We have planted the plants and harvested the crop. There is much yet that remains to be said, but which lack of space will not permit. I was induced to pen this work from the fact that in my own case, I found I needed just such a hand book, and could not procure one because there is nothing of the kind. I started out with the intention of writing a little work, a hand book or guide for the beginner in the culture of tobacco, and that it should not be long or tedious, a book of not more than one hundred and fifty to one hundred and sixty pages. This end I have kept in view and also that the book should sell at a small price, so as to be within the reach of every grower of the weed. I have given my own experience and the practical teachings of many of the most successful growers. In this latter course I may have often gone over the same ground in some points, but I wished to show the various methods pursued in many localities. For very valuable information I am indebted to my friend Mr. John Ott, of Richmond, Virginia, and the practical results and teachings which I have derived from Major Ragland, of Halifax county, Virginia, have been most val-

uable to me. He is the largest grower of Fine Yellow Tobacco, in this country, and is standard authority on the subject. To the courtesy of these gentlemen I am much indebted for material, which I otherwise would not have been able to obtain, at least as soon, and as thoroughly as I have done. To them, therefore, I extend my sincere thanks, as one of my first remarks in this chapter on General Observations.

Many persons ask the questions: "How much tobacco can you raise on an acre?" "What will it cost per acre to raise tobacco?" "How much money can you make on an acre of tobacco?" "What kind of tobacco would you put out?" "Ain't it very hard on the land?" Such questions as the above I am often asked, and many more of a like import. I will endeavor to answer them in this chapter, giving as clear and conclusive evidence on each point as I can, embracing some facts, figures, statistics and general topics which have not been embodied in any preceding chapter. To the first question, how much tobacco can be raised per acre, I reply; that depends on many and various circumstances, land, climate, quality, and condition of soil as to fertility, kind of tobacco raised and favorableness of the season. In Kentucky and Virginia, on good soil, with favorable season, one thousand to twelve hundred pounds of tobacco is often the result per acre, though this is by no means the average crop. Eight hundred pounds of good merchantable tobacco is considered a fair yield in either of these States, eight hundred pounds of good tobacco that will bring a good price. In North Carolina where the soil is thin and the plant raised a very light one, the yield per acre is likewise light, but owing to its brilliant color and general good qualities, what it lacks in weight it makes up in price, bringing from thirty to as high as eighty dollars per hundred pounds for its choice wrappers. Much the same may be said of that raised in corresponding tobacco districts of Virginia and Maryland. Mis-

souri raises large crops of tobacco, her lands being new the yield is large and quality good, much like that grown in Kentucky. One thousand pounds per acre may be set down as a fair yield in that State, all things being favorable for its production.

Pennsylvania, Ohio, and Connecticut grow the seed leaf or cigar tobacco mainly. Lancaster county being the "Banner County" of the whole country we will quote her yield to show the great profit of the crop. Fifteen hundred to two thousand pounds of tobacco is not at all an uncommon yield per acre of tobacco in this county. I myself have raised that amount in good marketable cigar tobacco. Many tall stories are told in Lancaster county as to the yield in pounds per acre, some of them almost exceeding belief. I have, however, received from entirely trustworthy sources, information which I have no reason to doubt, that some farmers raise as much as two thousand five hundred pounds per acre. Of all the districts now engaged in cultivating this plant, Connecticut and Pennsylvania present the highest average yield, sixteen hundred pounds per acre, as taken from the "Report of the Commissioner of Agriculture for the United States. Kentucky averages per acre 630 pounds, Virginia 630 pounds, Missouri 850 pounds, Maryland 675 pounds, West Virginia 680 pounds, North Carolina 500 pounds, Tennessee 675 pounds, Ohio 700 pounds, Indiana 500 pounds, Illinois 550 pounds, Texas 650 pounds, New Hampshire 1600 pounds, New York 800 pounds, Massachusetts 1350 pounds, Georgia 550 pounds, Florida 750 pounds, Mississippi 317 pounds, Alabama 465 pounds, Arkansas 822 pounds, Wisconsin 500 pounds, Kansas 670 pounds. This report was made for 1875, since which time there has been some material changes, but no statistics have been given on the subject in the volume for 1876. The average yield in Pennsylvania now exceeds that of any other State. This result is mainly due to the excellence of her soil and farming combined,

and the high average might be obtained by many other States by the same excellence and judicious treatment of their soils in managing this most lucrative product.

What will it cost per acre? This is another frequent query, and depends greatly upon locality, cost of labor, fertilizers, and other things necessary to its production. In Connecticut many growers will spend one hundred dollars on manures and other fertilizers alone for every acre they put out in tobacco. This would not be necessary at all in a district where the land is new and naturally rich. In Lancaster county good planters will expend, say for manure, twenty-five dollars. Interest on land at three hundred dollars per acre, at 6 per ct. eighteen dollars, six thousand plants, say six dollars, plowing land, spreading manure, setting plants, worming, topping, suckering, cutting, hanging, stripping, and all labor necessary, say fifty dollars, or in round numbers one hundred dollars per acre. Now some farmers will do it for much less, they will raise their own plants, they will hire cheaper labor, and will not expend twenty-five dollars in manure. Others will expend more. Set down seventy-five dollars, and you will not be far wrong if you farm well, and treat your land as you should and as it must be treated to raise a good crop of tobacco.

How much money can be made from an acre of tobacco? This question likewise has a wide range. I can with care, diligence, a good season and good market make two hundred dollars per acre, but not average that amount year after year. Farmers in Lancaster county have made four hundred, five hundred, and six hundred dollars per acre, but these are exceptional yields as they had remarkably large crops, and sold them for very high figures. One farmer told me he sold his whole crop of very many thousand pounds, *in the field*, at thirty dollars per hundred pounds, that is it was engaged at that price, and he received it when his crop had been cut, cured and cased for market.

One reliable grower in that county informed me that he

disposed of his last year's crop (1876) from eight and a-half acres for five thousand two hundred dollars. Another one received, so I was informed, eleven thousand dollars for twenty-one acres of tobacco, and still another was paid six thousand dollars for a little over twelve acres of crop of 1876.

These yields seem marvellous, and so they are, but nevertheless they are true as any one may verify by acquainting himself with the prolific people of that prolific county. Their energy, thrift, and intelligent management of the soil is a pattern which the husbandmen of any State may follow, and never go wrong, but 'twill surely lead to prosperity, comfort and wealth. Lancaster may be proud of her people, her people may be proud of Lancaster, and the country at large may well be proud of them both. I am not a Lancasterian. I couldn't well say more if I was. To sum up then, taking Lancaster county figures as a criterion to base future results, the prospect, to say the least is most encouraging. With as good land as theirs and equal intelligence applied with your labor in the treatment of the crop, you may reasonably expect to realize a profit of several hundred dollars per acre. This is not mere hypothesis, but is based on figures and upon actual results. "What man has done man again may do." What men are still reaping like results others may obtain. Aim high and resolve to obtain the best possible results, and you will not be disappointed in the issue of the yield of tobacco, barring all untoward features, such as a great drought, a heavy frost killing your plants when first set out, or the crop just before maturity.

"What kind of tobacco should I put out?" This likewise calls for enlightenment. Ascertain from some reliable source what tobaccos are grown in or near your locality, with the best success and greatest possible results to the planter. This is an easy matter to determine. If you live in Ohio, plant the Ohio seed leaf, or the Connecticut seed

leaf, or the Pennsylvania seed leaf. If in Connecticut, grow that which there succeeds best, their own native leaf, or rather what is known far and wide as Connecticut seed leaf. If in Pennsylvania, grow the Connecticut seed leaf, or the Pennsylvania seed leaf, or the Cuban leaf. You can get a plant now grown with success which is a mingling of the Connecticut and Cuban leaves. It grows a fine crop and gives a good marketable tobacco, commanding a high price. This is known as the Pennsylvania Havanna. In Virginia, Kentucky, Maryland, Missouri and North Carolina, the favorites are known as the Oronokos, the Pryors, Yellow Pryor, Blue Pryor, Silky Pryor, (this last named brand is a great favorite with Major Ragland, who thinks it one of the best grown), White Stem, Big Stem, Little Frederick, White Burley and Long and Small Green. They are chewing or pipe tobaccos, and much of it is known as shipping tobacco. In Bucks county, Pennsylvania, a tobacco is grown, which is known as the "Duck Island" leaf. It is a cross on Havanna and is much sought after by manufacturers.

In Florida a brand is grown which is also from Havanna seed. It is known as the "Gadsden wrapper." Gadsden county, Florida, produces this variety, the seed of which as before said was obtained from Cuba. They have been engaged in cultivating it for forty years. It has a small, narrow leaf, and possesses to a remarkable degree the peculiar aroma and delicate fragrance of the highly prized Havanna cigar.

Since the advent of German buyers, (says the U. S. Report for 1874) an article was introduced, which produces the Florida wrapper, and is now the main growth. Its leaves are sometimes three feet in length and twenty inches in breadth, of a fine silky texture, admirably adapted for use as wrappers, the coarser leaves being used very acceptably as fillers. Another variety, medium in size, introduced since the war, highly aromatic, even sometimes pungent, makes a strong cigar. A writer on its cultivation there,

says: "The prevalent opinion heretofore, that freshly cleared land was essential to the production of a fine quality of tobacco is fast giving way as the result of experience, it being found that successive crops may be grown on the same land without any deterioration in quality, so long as the fertility of the soil is maintained at its original standard, and it is being kept fouled with grass and weeds." Usually upon lands appropriated to tobacco no fertilizers are used for the first and second crops; after that a compost of barn yard manure and cotton seed, applied in the hill, is found to give the best results. In cultivation, if a lighter article is desired, the plow may be dispensed with after breaking up the land, and the cultivation done with the hoe. If a thick, heavy leaf is desired, the plant is topped so as to leave twelve or fourteen leaves; if a lighter article, it may grow until it begins to throw out the seed branches. This method of cultivation in Florida, will apply to any tobacco growing section, and what is here mentioned relative to keeping up the fertility of the soil, will apply to any soil, and will serve to answer another of the questions often asked me, to wit: Does not the cultivation of tobacco exhaust the soil? Is it not very hard on land?

It is hard on land certainly, so is any large crop when you fail to return largely to the soil those elements of which it has been depleted. Of tobacco, however, it can be said, that the land will require and respond to heavier and more liberal manuring than that demanded by most any other crop known. And that reminds me, just here, while on the subject of fertilizing, that all kinds of climate and soil do not require the same kinds of fertilizing. I have been in correspondence with Mr. John Ott, of Richmond, Virginia, on this very subject. He has paid as much attention to the matter perhaps, both in a scientific and practical way, as any man in this country, hence his views are valuable, accordingly. He says: "In the preparing of a fertilizer the climate is quite as essential as the soil, in order to be effect-

ive and produce the best possible results." An article adapted to the wants of the Virginia planter, would not be at all suitable for New England. An article intended for certain soils and different kinds of plug wrappers in Virginia or North Carolina, would not produce at all satisfactory results in Connecticut or Lancaster county, Pennsylvania, in the production of seed leaf or cigar tobacco. What is wanted, as has been said before, in plug tobacco, are plenty of gum, wax and oil. These are desideratums. But in cigar leaf none of them are desirable. What you do want in such tobacco is—a delicate, silky leaf, but without lustre, and one that will burn evenly and freely and with a white ash. To secure these, requires in the soil plenty of the salts of Potassium. To secure good burning qualities you must have present the Carbonate, Nitrate and Sulphate of Potassium. These are important points. It is for this reason that I go over the same subject, relative to these chemical ingredients, the second time.

Your soil may be deficient in these elements. You may wonder why you cannot grow your tobacco as others are doing, upon land much resembling your own, or as you used to do years before. The reason is simple enough, your land, good enough in other respects, has become exhausted of these elements, and will not respond until they are replaced. How are you to do this? You must write to some reliable fertilizing company and acquaint them with the quality of your soil. They will advise you as to the best fertilizer to use on your land, in conjunction with your own barn yard manures, so as to restore the lost elements. Treat impoverished soil as you would a sick person. A man is weak, debilitated, thin. His physician makes a careful diagnosis. From too much work, either of body or brain, or both, elements have been wasted which must be replaced ere he can be restored to health. The physician finds his brain deficient in phosphates, his blood lacking nutritious elements, which render it truly the vital fluid. What does

he do? Why, he satisfies himself thoroughly as to what elements are required to build up this shattered constitution, this weak body with perhaps brain functions impaired. Does he need Phosphatic and Iron elements? Yes! How does he give it? A lump of phosphorus and a pound of nails? No! He judiciously prepares some remedies containing the phosphates and iron, an easily assimilable form, and also food which largely contain these ingredients. He administers them, and soon the blood flows fuller, richer, redder and warmer, and new life is instilled into heart, body and brain. The man is built up. Just so it should be with the impoverished soil. It is thin. Elements are wanting to grow tobacco. What are they? Largely, perhaps, the salts I have mentioned and other ingredients. Get them and administer in conjunction with other soil food that you know from experience is always good for ground and crops. Do this in proper quantities and at the proper time. It will richly repay you and your land will not run down.

Contribute to your land liberally from your barn yard. Forget not that. Remember that no fertilizer can take its place. You may find plenty of valuable adjuncts to use, but none "in the long run" to bear comparison with it. Keep plenty of stock. Use up all the food material you raise on your farm, converting hay, straw, fodder, &c., into manure. Have all the tobacco stalks and stems saved and ground up, and spread upon your patch. Have a care that you do not put out too much tobacco, because you may have to apply manure on it to the detriment of the balance of your land. Remember tobacco is a luxury, not food. Your first duty is to supply food for yourself and your stock. You must not lose sight of this fact. Therefore do not neglect your grasses and potatoes, and the cereals, in your eager haste to reap gold from a tobacco crop. Cultivate just what you can well manage, and without interfering with the ordinary products of your farm. Do not think you can buy food and manure. This some farmers have

followed to their sorrow. Make all the manure you can. Raise your usual crops of corn, wheat, oats, rye and potatoes, together with hay and fodder. Keep good thrifty young cattle. They will fatten, grow into money for you, and every season fill your barnyard with well rotted manure and thus you will not see your soil run down and yourself become impoverished. Keep these things in view, and if you do so well and wisely, tobacco will make you rich.

CHAPTER XVII.

STATISTICS AND TOBACCO PROSPECTS.

The question is often asked "may not the tobacco market be overstocked and the crop rendered non-paying?" There is at first glance some foundation for this hypothetical fear. The area now planted in tobacco, if all put together in this country, would in extent equal the area of but two ordinary counties and yet this comparatively small amount of acreage is adequate to the demands of the world at large for the "weed." There can be no doubt but that, if in a single season this area was doubled, the market would be glutted and prices decline to a very low figure. This, however, is not likely, and there are several causes which are continually militating against the plant as a crop which tend to keep prices at all times up to a remunerative point. First, there are failures every year to a greater or less extent in the different tobacco growing districts of the world. One season it may be Cuba, or some other of the islands, or some districts in South America; another time Kentucky, Virginia, Connecticut, Pennsylvania, or Missouri, failures or but half crops. Another thing, whilst every season there are new districts and more acreage brought under cultivation, others are decreas-

ing and being partially or wholly abandoned. Then again, according to statistics in this and other countries the consumption of tobacco is steadily increasing. At no time since the discovery and general introduction of the weed has there been any marked decrease in the use of this luxury. These facts taken together go to show that, while there is a possibility, it is not probable there will be an over-production of this commodity, but it will ever remain a highly remunerative crop.

From the earliest days in the history of our land, tobacco as a staple commodity, and producer of revenue, has occupied a commanding position. From it communities have grown rich, States become powerful and enviable, financially, and the producers have been able to command every comfort and luxury. Planters have been able to secure for their children and families, the full benefits of a most liberal education and the culture of polished society, and it has enabled them to dispense a hospitality which has given them a reputation in every part of the globe. It possesses a financial power wherever largely cultivated, and gives a solid comfort and independence to the people of all such regions.

The beginner in cultivating tobacco should most carefully keep in view and act upon two things.

First: Place under cultivation just so much land as you can work in the best manner possible, remembering that one acre well handled, will produce more and better tobacco than two acres carelessly cultivated, and for which you have been unable to secure the full amount of nutriment fertilizers. You must not aim to produce the largest quantity but a crop of the most excellent quality. I will give here the chemical or mineral analysis of the best Virginia tobacco, as made by Dr. Voeleker, of London, England, for Mr. John Ott, of Richmond, Virginia. This analysis was made from the ashes :

Lime	23.39
Magnesia,	4.05
Oxide of Iron, . . . . .	.81
Potash,	18.55
Chloride of Potassium,	5.82
Chloride of Sodium,	7.17
Phosphoric acid,	3.36
Sulphuric acid,	3.37
Soluble Sileca,	13.80
Fine sand,	5.72
Carbonic acid and loss,	13.96
	<hr/>
	100.00

From the same source we have the following detailed analysis of the fine bright Virginia wrapper :

Moisture,	14.68
Gum, extractive and other substances soluble in water,	36.17
Mineral matters soluble in water,	8.92
Nicotine,	1.37
Resinous compounds, oil and other constituents soluble in ether and alcohol,	6.68
Digestible woody fibre,	14.43
Indigestible woody fibre (pure cellulose)	12.42
Mineral matter, insoluble in water,	4.33
	<hr/>
	100.00

Tobaccos vary in the quantity of nitrogen contained. It would seem that, according to the analysis given, delicate, mild flavored tobaccos are poor in nitrogen. Thus for instance :

	<i>Per cent. of Nitrogen.</i>	<i>Per cent. of Ash.</i>
"Lone Jack"	1.65	14.93
Perfection straight cut matchless,	1.68	16.48
Louisiana Perique	3.04	20.55

Thus you will see the difference between the black strong Perique tobacco and the others in the quantity of both Nitrogen and Ash.

The increase or decrease of these elements will be determined by locality, the quality of soil and the amount and

character of the fertilizers used. For instance this black, pungent and exceedingly strong tobacco, Perique, is grown in the particular climate and soil peculiar to St. James' Parish, Louisiana. The "Gadsden" wrapper leaf, another tobacco of a peculiar kind, and one that now rivals Cuban leaf, is peculiar alone to Gadsden county, Florida.

In connection with these remarks on the analysis of tobaccos, we find that they contain largely of the salts of potash and nitrogen, hence soil must contain these elements in order to produce good tobacco. This is why such large crops and excellent quality of tobacco are produced from newly cleared land, and from river or creek bottom-lands which have been subjected to overflow. They contain much vegetable matter, a vegetable mould, from which the plant mainly derives its salts. This in like manner is why barn yard manure is the best fertilizer of tobacco. Remember these points.

The tobaccos known in the markets of this country and also in many parts of Europe have various names commercially. Thus the plant grown in the north has the general name of "Seed Leaf" which is further localized by "Connecticut Seed Leaf," "Pennsylvania Seed Leaf," and "Ohio Seed Leaf." These names apply to cigar tobaccos alone. We have then other names, such as "Western," "Maryland," "Ohio," "Virginia," "Kentucky," although the term "Western" takes in the tobaccos generally grown in the west and south-west. It has also another commercial term, "Shipping."

The following are some of the rival tobacco producing countries of the world, together with their products of the weed per year. I give the statistics for 1873:

	<i>Pounds.</i>
Austrian Empire, (including Hungary), . . .	58,000,000
Turkey, price 3d. to 3s. and 4s. per lb., . . .	43,000,000
Brazil, price 3d. to 1s., 6d.	31,419,385
Cuba, price 1s. to 12s.	225,139,000
Philippine Islands, price 6d. to 5s. per lb., . . .	171,803

Japan, price 3d. to 8d.	per lb., (Exported),	6,600,336
China, price 3d. to 6d.	" "	10,526,000
New Granada, price 6d. to 2s.	" "	10,708,320
Ecuador, price 1s., 2d. to 2s.	" "	500,000
Venezuela, price 4d.	" "	59,505
Guatemala, price 4d.	" "	1,000,000
Mexico, price 8d. to 1s., 6d.	" "	845,150
Porti Rico, price 6d.	" "	1,693,420
San Domingo, price 6d. to 1s., 3d.	" "	15,024,800
Greece, price 3d. to 4d.	" "	339,712
France, price 4d. to 8d.	" "	3,167,181
Russia, price 8d. to 1s.	" (Value),	\$23,820,000
British India, price 2d. to 3s.	" (Exported),	3,362,000
Australia, price 2s.	" "	2,136,804
Argentine Con., price 6d. to 9d.	" "	340,787
Holland, price 3d. to 7d.	" "	20,820,200

Great Britain is not a producer, but a great consumer.
In 1873 she imported

	<i>Pounds.</i>
Tobacco,	81,382,733
Cigars,	1,627,581

The duty there on tobacco is three shillings per pound. If it contains less than ten per cent. of moisture, 3s., 6d. per pound. In the United States our tax is: On cigars of all grades, six dollars per thousand; on all snuff or snuff flour, 24 cents per pound; on all chewing and smoking tobacco, 24 cents per pound; Manufacturers of tobacco or snuff, special license of \$10. Retail dealers in leaf tobacco are required to pay a special tax of \$500, and if their annual sales amount to over \$1000 they must pay an additional tax of fifty cents for every dollar in excess of \$1000, of their sales. The tax upon dealers in leaf tobacco, those who buy and sell on commission original and unbroken hogsheads, bales and cases, is \$25.00. They must pay this amount and secure a license. There is no tax on leaf tobacco.

Farmers and planters are not required to pay any tax on tobacco of their own raising, or that received by them as

rent from tenants who have produced the same on their land. Neither will the farmer be required to pack or prize his tobacco before offering it for sale, in hogsheads or otherwise, but he may sell it loose as he has heretofore been in the habit of selling, irrespective of taxation. If, however, he sells direct to consumers, or if he sells, assigns, consigns, transfers or disposes of his tobacco to persons other than those who have paid special taxes, either as leaf dealers or as manufacturers of tobacco, snuff or cigars, or to persons purchasing leaf for export, he becomes liable, as a retail dealer in leaf tobacco, to the special tax of \$500, and to the additional tax of fifty cents on every dollar in excess of \$1000 of his sales. It is the duty of every farmer producing and selling leaf tobacco, on demand of any revenue officer, to furnish a complete statement, verified by oath, of the amount of his sales, to whom sold, and where shipped.

This is then about the sum and substance of the revenue laws on tobacco:

No tax on the raw material.

Wholesale license \$25.00.

Retail license, ~~\$5.00~~, and 50 cents on each one dollar in excess of sales over \$1000.

Snuff, 24 cents per pound.

Chewing and smoking tobaccos, 24 cents per pound.

\$500⁰⁰ (See P. 150)

CHAPTER XVIII.

COLLONIAL HISTORY OF TOBACCO.

In the early pages of this book I gave a brief, general historical account of tobacco, its discovery and introduction as a luxury to the world at large. Since I wrote the article in question, and after it was in print, I was so fortunate as to receive a short historical essay on "the weed" by Mr.

John Ott, of Richmond, Virginia. It tells of tobacco as grown in Virginia in colonial days, and much valuable information generally. Mr. Ott secured most of his data from old colonial documents, and the subject matter is in that quaint old manner of speech which was in vogue in the sixteenth and seventeenth centuries. I have kindly received permission to use this material from Mr. Ott and I gladly present it to my readers, feeling sure that to them it will prove interesting reading, as it was to me.

DISCOVERY.

If Thomas had lived in this present time he would have failed of any particular notoriety, inasmuch as faith appears to have been relegated to the days of yore, and doubt reigns supreme. The iconoclasts are busy at all points, and in another century or two Washington himself will undoubtedly dwindle into a myth. Shakespeare, under their hands, turns out to be only a *nom de plume* of Lord Bacon, and "Bloody Mary" a most amiable lady. Until lately, it was accepted on all hands, that the advent of Tobacco into the world at large dates from the discovery of America by Columbus, and that civilized white man was consequently indebted for this solace to the "gentle salvages" who occupied these western shores. Now it is claimed that the people of the Orient were habitual lovers of the Weed long before the journey to the Indies by sailing westward was even dreamt of.

We have no room to enumerate the theories relating to the ante-Columbus use of Tobacco; indeed, must confine ourselves here to a few definite facts relating to this plant in America prior to the colonization of Virginia. In November, 1492, its use was first observed (in Cuba), and by the sailors of Columbus, during his first voyage. The tobacco was enjoyed in the form of a cigar, with a wrapper of corn shuck, and time has not changed this fancy in that

quarter, the cigar being still universally preferred. In 1503 the Spaniards found the natives of Paraguay chewing it. It was one of their methods of waging war to spurt the juice into the eyes of their adversaries. Roman Pane, 1494, goes quite fully into the matter in the account he wrote of the second voyage of Columbus. The name he gives for the plant is *cogiaba*, which was its name in Hispaniola; the word is spelt by other travelers *cohiba*. Ovieda, (*Historia General de las Indias*, 1526) says the word *tobacco* was not that of the plant itself but of the appliance used in smoking it. This was "about a span long, and when used the forked ends (Y) are inserted in the nostrils, the other end being applied to the burning leaves of the herb." GOMARA, 1519, describes its use in Mexico, where it was called *piecelt*; and DE BRY, in 1590, in Brazil, where the name it bore was *petun*. SIR FRANCIS DRAKE, in 1572, noted its use generally throughout North America, as far as that continent was discovered.

Our main purpose, in the following pages, is to present to our friends this noble crop, as it has borne from the beginning upon the prosperity and comfort of the Commonwealth of Virginia. It deserves always our most grateful recognition. Of course its treatment necessarily includes reference to the contiguous territory of Maryland and North Carolina; and as our space is limited, we will have, in respect of the facts, (using the words of SIR EDWIN SANDYS,) "to draw them into head, and ripen the business."

In examining the material, bearing upon a crop holding such importance in the trade of the world as tobacco, we find the authorities to be very numerous. Whether, therefore, the source of information is indicated or not, what is submitted may be accepted as at least authentic.

I.—TOBACCO IN VIRGINIA FROM ITS SETTLEMENT TO THE CLOSE OF THE REVOLUTION.

If man was put into the world merely to maintain an existence, civilization would be impossible. The flesh of

beasts, seasoned with parched corn and wild onions would undoubtedly preserve health as well as life. But he demands more; he must enjoy himself also. His artificial wants then have been the *improving* side of his career, and in the desire for the means to gratify these wants, he has reached a development that proves his paternity to be of God. Few men work for the love of work.

The reproof in Peter's vision did not stop with him. The earth is covered with a manifold vesture, and not a few of its products that we once despised in our ignorance we now find to be of the utmost value. Even the "worthless *algae*" has become precious. And tobacco, in our pleasures, holds a place assigned to few things of actual need; indeed, if human experience, high and low, is deemed to be a proper judge, tobacco, next to bread and raiment, is most esteemed by man. Adopting the words of FAIRHOLT: "a philosophic and charitable view of the minor indulgences of life would lead us to look with no frowning eye upon the simple pleasures of the poor,—and tobacco has been called 'the anodyne of poverty.' He would be harsh indeed who would deprive the poor man of the hard-earned solace his pipe presents, the small reward of comfort vouchsafed a long life of toil. There must be some charm, which he, in his narrow philosophy, cannot comprehend, which can recompense in the pipe the toil and privation endured by the laborer, the discomfort of the sailor on a stormy deck, or the soldier in the trenches. As a comfort to the poor, as a luxury to the rich, tobacco unites all classes in a common pleasure."

What follows will be more a grouping together of extracts from trustworthy documents, showing points of interest in respect of this crop, than any connected history, as this would occupy more space than we have at our command.

During the voyage made by the expedition fitted out under the patronage of SIR WALTER RALEIGH, in 1584, Virginia, was discovered. HARIOT, who was with the expedition, published in 1588, "*A Briefe and True Report of the*

New Found Land of Virginia." Of tobacco he makes the following mention: There is an herbe which is sowed by itselfe, and is called by the inhabitants *uppowoc*. In the West Indies it hath divers names, according to the severall countries where it groweth and is used; the Spaniards generally called it *tobacco*. The leaves thereof being dried and brought to powder, they use to take the fume or smoke thereof, by sucking it through pipes made of clay, into their stomacke and heade, whence it purgeth superfluous fleame and other grosse humours; openeth all the pores and passages of the body, by which means the use thereof not only preserveth the body from obstructions, but also if any be so that they have not bene of too long continuance, in short time breaketh them; whereby their bodies are notably preserved in health, and know not many grievous diseases wherewith we in England are oftentimes affected. This *uppowoc* is of so precious estimation amongst them that they thinke their gods are marvellously delighted therewith; whereupon sometime they make halowed fires, and cast some of the powder therein for a sacrifice. Being in a storme uppon the waters, to pacifie their gods, they cast some into the aire and into the water; so a weare for fish being newly set up, they cast some therein and into the aire; also after an escape of danger they cast some into the aire likewise; but all done with strange gestures, stamping, sometime dawning, clapping of hands, and staring up into the heavens, uttering therewithal and chattering strange wordes, and noises. We ourselves during the time we were there used to suck it after their manner, as also since our return, and have found many rare and wonderfull experiments of the virtues thereof, of which the relation would require a volume by itselfe; the use of it by so manie of late, men and women, of great calling as else, and some learned phisitions also, is sufficient witness."

WILLIAM STRACHEY, the first Secretary of the Colony, wrote, in 1610, the following about tobacco: "Here is a

great store of tobacco, which the salvages call *apooke*; howbeit, it is not of the best kind; it is but poor and weake, and of a biting taste; it grows not fully a yard above ground, bearing a little yellow flower like to henbane; the leaves are short and thicke, somewhat round at the upper end; whereas the best tobacco of Trynidado and the Orinoque is large, sharpe, and growing two or three yards from the ground, bearing a flower of the breadth of our bell flowers in England; the salvages here dry the leaves of this *apooke* over the fier, and sometimes in the sun, and crumble it into powder—stalks, leaves and all—taking the same in pipes of earth, which they very ingeniously can make.”

BEVERLEY, page 116, says: “I am informed that they [the Indians] used to let it [tobacco] all run to seed, only succoring the leaves to keep the sprouts from growing upon and starving them; and when it was ripe they pulled off the leaves, cured them in the sun, and laid them up for use. But the planters make a heavy bustle with it now, and can’t please the market neither.”

Sir RALPH LANE, first Governor of the Colony, and not Sir WALTER RALEIGH, appears to have the honor of introducing tobacco into England. Captain YEARDLEY, Deputy Governor in 1616, directed the colonists to tobacco as a crop that promised good returns, and this year witnessed its first planting by white men of Virginia. According to HAMOR, John Rolfe, (the husband of Pocahontas), was the man who “took the lead.”

Captain JOHN SMITH, among other things, says that in this good land of Virginia, “The vesture of the earth in most cases doth manifestly prove the nature of the soyle to be lusty and very rich. * * * For the most part it is a black sandy mould, in some places a fat, slimy clay, in other places a very barren gravell. But the best ground is known by the vesture it beareth, as by the greatnesse of trees, or abundance of weeds, &c. * * * Sometimes there are great droughts, other time much raine, yet

great necessitie of neither, by reason we see not but that all the varietie of needfull fruits in Europe may be there in great plentie, by the industry of men, as appeareth by those we there planted." "Mrs. Pierce, an honest, industrious woman, after passing twenty years in Virginia, on her return to England (1629), reported that she had a garden at Jamestown, containing three or four acres, where in one year she had gathered a hundred bushels of excellent figs, and that of her own provision she could keep a better house in Virginia than in London for three or four hundred pounds a year, although she had gone there with little or nothing. The planters found the Indian corn so much better for bread than wheat that they began to quit sowing it."

It would seem that the colonists very soon began to raise too much tobacco, and therefore neglect a proper provision for crops on which their sustenance depended. The large quantity produced, moreover, was done at the cost of quality. Hence we see constant spiteful references to the crop in the communications of the home company (*"The Virginia Company of London"*). In August, 1621, they write: " * * We desire you to give notice to the Collony that after this year they expect no further supply of any necessaries to be exchanged with them for their darling tobacco." —Sept. 11, 1621. " * * We heartily wish that you would make some provision for the burning of all base and rotten stuff, and not suffer any but very good to be cured, at least sent home, whereby these would certainly be more advanced in price upon less in the quantity; however, we hope that no bad nor ill-conditioned Tobacco shall be by compelling authoritie (abusing its power for public good to private benefit) putt uppon our Factor. * * Finding besides all former losses that neare 40 thousand waight sent home last yeare for the generall Company and Magazine, the better half hath not yielded 8 pence per pound, and the rest not above 2 pence, to which prices there is no possibili-

tie that they should arise this next yeare, so that there must be an abatement of the price of tobacco there ; neither can we yield (which is by some of the planters propounded) but by the whole company, not only the adventurers of the magazine desired to continue the ould rate of 3 shillings per pound, and to as much in the goods sent hence as the tobacco is esteemed less worth than that rate, for although for matter of profit it might go currant much alike, yet thereby we should see maintain the Collony in their overweening esteem of their darling Tobacco, to the overthrow of all other staple comodities, and likewise continue the vile will they have conceived there and scandalous reports here spread of oppression and exaccions from the Company, selling all their comodities for three times the vallew of what they cost, upon which fond and unjust surmises they thinke it lawfull to use all manner of deccit and falsehood in their tobacco they put upon the Magazine." The "Virginia Company" was dissolved in 1624, and Charles I. (1625) took the government of the colony into his own hands. The control of business, however, did not cease to lie with the merchants of Great Britain. They continued to supply Virginia with goods not only up to, but many years after, the Revolution. Mr. MORDECAI ("*Richmond in By-gone Days*") gives a very interesting account of the way these merchants managed. They were represented here by junior partners, who were not permitted to marry in Virginia. "They came with the prospect of being admitted as partners in some branch of the central establishment, and it might weaken the sordid attachment to their patrons if they formed an attachment of a purer and tenderer nature to the fair daughters of their customers. They might make less stringent bargains, or be more indulgent in requiring payments." This prevented any social intercourse between these factors and the planters. "Competition did not interfere to reduce the profit on goods below 40 or 50 per cent., nor to raise the price of tobacco, which was generally taken in payment,

above 16s. 8d (say \$2.78) or 18s (\$3) per hundred pounds; and at that time the sale of no tobacco other than good leaf or stemmed was permitted—the rest was burned. Previous to the Revolution, a convention of these British factors was held annually at Williamsburg, *when the prices they would allow for tobacco was fixed for the current year, after the crops were pretty well ascertained.* * * Those planters who lived extravagantly were apt to fall in debt to their merchants, and would give bonds, renewed from year to year, with interest added, until a mortgage or deed of trust ensued, and thus some fine estates changed hands from planter to merchant.” The greed, injustice, and oppression, under this system, so long the rule in youthful Virginia, in the matter of the trading class, produced a hostility between planter and merchant, so bitter and so abiding, that despite the utter change of circumstances that had in the meantime come about, it is a fact that, as late as 1850, the mercantile community of the City of Richmond *did not number twenty-five firms composed of native Virginians.* Before the war the enjoyment of comfort was so settled a condition with our people, that the politicians gave their thoughts more to the general affairs of the country, than to the strengthening of their State by fostering a central market for its products, and a disposition to engage in manufacturing enterprises. Now that the war is done, and comfort with us is only too much a thing of the past, these considerations cannot be longer disregarded. But, looking at our legislation, from year to year, we do not see that harmony of interests so necessary to insure a perfectly successful issue. The traditional animosity between town and country, referred to, does not appear to have wholly died out, and instead of Virginia availing herself of the position nature has assigned her, as a centre of trade and manufactures, she continues too much the vassal of the people north of the Potomac. Had her representatives in the Legislature the business knowledge a body circumstanced as they are should have, we might look

for measures that would unite *all the people* in the work of our regeneration, and in providing, in an intelligent way, for the obligations incurred in the past, and which the honor of the State demands shall be liquidated.¹

The Governor and Council of Virginia were responsive to the Company's directions, as we see clearly by their communication of January, 1622: "For the drawinge of the People from the excessive plantinge of Tobacco, we have by the consent of the generall assemblie restrayned them to 100 plants ye headd, uppon eache of which plantes there are to bee left butt 9 leaves, which portions as neare as could be guessed, was generally conceived would be agreeable with the hundred waight you have allowed. By which means, as also by the course we have taken for the keepinge of every man to his Trade, we doubt nott but very much to prevent the immoderate plantinge of Tobacco. But nothing can more encourage all men to the plantinge of corne in abundance, and soe divert them from plantinge of Tobacco, than you would be pleased (since yt you desire that greate plenty of corne be planted here as well for such multitudes of people as you hope yearly to send over, as for our owne selves) to allow us a Marchantable Rate here for our corne, either to be paide by Bills of Exchange in England or in comodities to be delivered here at 25 p. centum, the price of 7s. the Bushell being proposed by the generall assemblie was by us thought very reasonable, since the corne you send over, besides the hazard of being lost or spoyled at Sea, doth stand you as much or more the charge or freight in cask considered." The Governor and Council (Jan. 20, 1623), in explaining the reasons for slow returns to the home company, say: " * * Beside there have and doe come daylie into this land so many privatt adventurers equallie recommended unto us, as five times ye cropp of this yeare will not satisfie, there being not made above three-score thousand waight of Tobacco in the whole Collonnie, and so many privatt adventurers beside, that

except we should deny free trade contrarie to ye equitie of your order, doe and will take away much of our Tobacco, though we have no warrant to them to receive it, because many of their comodities as sacke, sweete meates and stronge liquors are soe acceptable to the people."

JOHN ROLFE was a man of enterprise in more ways than one. He not only started the planting of tobacco in the colony, but was early concerned about its successful management. He says (1616): "Tobacco, though an esteemed weed, is very commodious, which there thriveth so well that no doubt but after a little more trial and expense in the curing thereof it will compare with the best in the West Indies." Improvement in "curing" was made the next year. STITH says (1617): "This year one Mr. Lambert made a great discovery in the trade of planting; for the method of curing tobacco then was in heaps; but this gentleman found out that it cured better upon lines, and therefore the Governor wrote to the company to send out lines for that purpose." It afterwards underwent a change. Says GLOVER: "They drive into the stalk of each plant a peg, and as fast as they are pegged, they hang them upon tobacco sticks, so nigh each other that they just touch, much after the manner they hang herrings in Yarmouth." By proclamation of April 4, 1628, it was directed that such a reasonable proportion of Tobacco only shall be planted as may be cultivated without injury to a plentiful crop of corn; that the plants should be set at least four and a half feet apart, and that not more than twelve leaves should be gathered from each plant, and that great care should be taken not to *burn* it in the sweating. There is nothing anywhere to indicate that fire was used by the colonists in curing their tobacco, only the sun and air. The "burn," referred to above, was undoubtedly what is known now as "house-burn" or "pole-sweat," which results from overcrowding in the barn. BEVERLY (page 237) says in this direction: "Their [the planters] tobacco houses are all built

of wood, as open and airy as is consistent with keeping out the rain, which sort of building is most convenient for the curing of their tobacco. They cover their tobacco houses with thin clap board." CLAYTON, to insure an early setting of plants, steeped the seed in an infusion of stable manure and soot. In sowing the bed, he mixed the seed with ashes. As to distance of plants in the field, it was, as we see in 1628, $4\frac{1}{2}$ feet; later, 4 feet; and still later 3 feet, as at present. GLOVER says: "When the plant hath put out so many leaves as the ground will nourish to a substance and largeness that will render them merchantable, they then take off the top of the plant. If the ground be very rich, they let a plant put out a dozen or sixteen leaves before they top it; if mean, then not above nine or ten, and so according to the strength of the soil." We find in 1633 a law directing the planters "to sow those kinds of tobacco which are of the long sorts, and all other sorts the next year shall be left off and given over." CLAYTON says: "These are not only the two distinct sorts of sweet-scented and Aranoka; but of each of these be several sorts much different, the seeds whereof are known by distinct names, they having given the names of those gentlemen most famed for such sort of tobacco, as '*Pryor*' seed, &c. Nay, the same sort of seed in different earths will produce tobacco much different as to goodness. The richer the ground the better it is for Aranoka tobacco, whose scent is not much minded, their only aim being to have it spacious, large, and to procure it of a bright colour." On this point JONES (pp. 34 and 39) says: There are two sorts of tobacco, viz. Oroonoko, the stronger; and sweet-scented, the milder: the first with a sharper leaf, like a fox's ear, and the other rounder, and with finer fibres; but each of these is varied into several sorts, much as apples and pears are; and I have been informed by the Indian traders that the inland Indians have sorts of tobacco much differing from any planted or used by the Europeans. * * * *

The land in the latitude between the James and York rivers seems most nicely adapted for sweet-scented or the finest tobacco; for it is observed that the goodness decreaseth the farther you go northward of the one and the southward of the other. The soil referred to is the "light gray," that runs from York River through to Spottsylvania county, and the tobacco *now* produced on this land is noted for its exquisite flavor, and stands at the head of all others on the market in the manufacture of fine plug tobacco.

But this may be I believe attributed in some measure to the seed and management as well as to the land and latitude; for on York River, in a small tract of land called *Digges' Neck*, which is poorer than a great deal of other land in the same latitude, by a particular seed and management is made the famous crop known by the name of "*E. Dees*," remarkable for its mild taste and fine smell." The produce of an acre on the best land appears to have been about 1,660 pounds, and on poor land about 500 pounds. The tobacco put up by the colonists for export was in bundles of leaf, as at present; that from the West Indies was in balls, in the preparation of which molasses was used. The weight of the hogshead was, in 1657, 350 pounds; then 500 pounds; then 800 pounds; and then as much as 1,100 pounds, which latter figure was not often exceeded prior to the Revolution.

Tobacco had become *the* staple crop of Virginia. James I. not only attacked tobacco through his "*Counterblaste*," in which he described smoking as "loathsome to the eye, hurtful to the nose, harmful to the brain, dangerous to the lungs, and in the black, stinking fume thereof, nearest resembling the horrible Stygian smoke of the pit that is bottomless;" but he violated the charter granted to the company, by extorting under his prerogative a revenue from its sale. Charles I., his successor, went farther, and proposed that a monopoly should be granted him. To this the Governor and Council replied that they would contract with the King for all of their tobacco, at 3s. 6d. per

pound, delivered here, or 4s. delivered in London, to be free of customs of any kind. And to insure the tobacco to be of good quality, they inform the King that it is all to be examined by men sworn for that purpose, before it is shipped. They request the King to take at least 500,000 pounds weight, at the above prices, and if he should not be disposed to take the overplus, if any, that they may be permitted to ship it to the Low Countries, Ireland, Turkey, or elsewhere. They offer the contract for seven years, and request that if the consumption of England should exceed the supply from the Somer Islands, with the quantity above stipulated, that that quantity may be proportionably increased. In the event of the King's acceding to these terms, they request that the importation of Spanish tobacco may be prohibited; and again repeat that they have taken special care to insure their tobacco to be of the best quality, and have appointed sworn triers to examine it after being cured and before it shall be shipped; that they had also ordered a proclamation to be made, requiring the planters to set their plants four and a half feet apart, and to gather twelve leaves only from a plant (instead of twenty-five or thirty, as some time before); that they had reduced the quantity to be planted as low as they well could, considering the population of the colony, and having a due regard to the culture of a sufficiency of corn.

By act of Assembly (xxii. 1631) it was enacted that no person should tend over fourteen leaves, nor gather over nine leaves, upon a plant of tobacco. By xx. 1632, no person was permitted to tend any slips of old stalks of tobacco or any of the second crop, on forfeiture of the whole crop raised: by xxiv. 1632, all tobacco had to be taken down before the end of November, or else be accounted unmerchantable; and by i. 1633, the planters were obliged to bring in all their tobacco to the appointed storehouses before the last day of December, where it was to be repacked, viewed, and tried by sworn men appointed for the

purpose, the quantity entered to the several accounts of the planters; and then all payments of debts were to be made at these storehouses in the presence of the keeper. By this same law, no tobacco shall be "made upp in rolle" except between the first day of August and the last day of October (afterwards extended to the last day of December) and no old tobacco shall be made up at all. Price of tobacco limited to nine pence a pound. By act cxxii. 1658, "In case anie person or persons whatsoever shall false pack anie tobacco, that is, pack anie ground leaves to the quantity of five pounds in a hogshead, among his topp tobacco, it shall be lawful to give order for the burning it." By act xlvii, 1705 "If any person or persons whatsoever shall pay away, or put to sale, or offer to pay away or put to sale, any hogshead of tobacco which he hath deceitfully, or hath caused or suffered to be deceitfully packed, by putting thereunto any stones, or intermingling therewith any dirt, sand, tobacco stalks, stems, ground leaves, or other trash whatsoever, shall forfeit, for every hogshead so deceitfully packed, 1,000 lbs. of tobacco." In this year (1705), all tobacco brought into Virginia from Carolina, or without the Capes, was forfeited. By act v, 1720, raising "seconds" was prohibited, and tobacco stalks to be cut up within twenty days after the plant was taken off. Slaves were made this year a real estate. The first brought to the colony were on a Dutch man-of-war, in 1620, and numbered only twenty.

Quite soon after tobacco had grown into any importance as an exporting crop, it became the currency of the colony. All values, whether of service or of property, were expressed in pounds of tobacco. Under such circumstances, inspectors were absolutely necessary to preserve the standard, and the laws made respecting these officers are very numerous and very stringent. As time passed, and the producing power of the colony was increased through the introduction of negro slaves by the English and Dutch, the

volume of the crop grew beyond the limits of consumption, when prices declined of course. Both "seconds" and "primings" were put under the ban and burnt; indeed, to enhance price by curtailing supply, a portion of the good tobacco took the same direction. Lord CULPEPPER, in 1681, says: "The market is overstocked, and every crop overstocks it more. Our thriving is our undoing, and our buying of blacks hath extremely contributed thereto by making more tobacco." Many of the settlers had been landed gentry, and had a taste for large estates and for a country life. In the time of the Company, there was no difficulty about acquiring large estates, since every share of £12. 10s. entitled the holder to fifty acres. After the dissolution of the Company, the government seems to have been careless in its grants of land, and many men acquired estates far larger than they could properly manage. The number of rivers, and the ease with which the settlers could transport themselves and their goods from one place to another, favored this mode of life. The cultivation of tobacco, and the use of slave labor, also helped to bring this about. Slaves [negro] can seldom learn to cultivate more than one kind of crop; and as tobacco exhausts the soil, it was necessary to be always taking fresh land into cultivation, and leaving that which had been already tilled to recover. Thus each planter needed far more land than he would have done under a more thrifty system. Various attempts were made to establish towns, but they came to nothing, chiefly because every one wanted to have the town within easy reach of his own plantation.

By the act vii., 1686, all planting or replanting after the last day of June, and the shipping of tobacco stalks, were prohibited, as "seconds, slips, and late planted tobaccos, not having sufficient time to come to full growth and maturity, the same proves in generall to be damaged by the greenness, thinness, and other ill qualities thereof, although no other wett or moisture than what it hath in its oune

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naturall ease come to the same, and by reason of such damage the importer thereof payes little or noe custome for it, and yet the said tobacco being cut and mixed with stalks, is commonly put to sale at underrates, and thereby the commoditie in general much undervalued and reduced to see low a price in this country, that many planters are, and will be by reason thereof, compelled to leave off planting tobacco, and to employ themselves about husbandry, and in making and improving several manufactures, with which this country hath been alwayes heretofore furnished from England." In 1696, the prohibition above, in regard to limit of planting time, was repealed.

As time advanced, the colony growing in numbers, and spreading back from tidewater towards the mountains, its governmental affairs took manageable shape, and its trade was established on a basis of reasonable regularity. Tobacco warehouses were erected at all convenient points, at which were found inspectors as we find them now. The war about these excellent officers is by no means a new thing. We observe, in 1732, that Mr. Carter, inspector at Corotoman (Lancaster county), had this complaint lodged against him: "Circumstances are very plain that he spitefully burnt James Polland's tobacco; and he threatened to split Peter River's head, and offered to turn him out of doors. * *

The Inspectors passed very bad tobacco for some people, and often burnt good tobacco, &c." Whereupon the Inspectors present to the authorities this certificate of their uprightness: "I think the Inspectors all very honest men, and as far as ever I see very clearfull in their office, not to pass any Tobacco but what was good, and in my opinion have done equall Justis to all, &c." "Warehouses, regulated substantially in the present mode, date from the time of Spottswood. (H. Jones, pp. 55, 56.) While tobacco was largely grown on our principal rivers below tide, and the market was wholly abroad, it was thought a hardship on such planters as could lade a vessel from their own

shores, to compel them first to carry their crops to a distant warehouse to be inspected; and these clamors, after a few years, induced a repeal of the law. But its benefits had outweighed the inconvenience, and in time it was re-enacted; and, as the culture of the plant spread westward, the planters acquiesced in the arrangement which improved the quality of their staple and prevented numerous frauds."—CABELL, page 19. In 1712, these houses were called (Act V) "rolling houses," from the manner in which tobacco was rolled to market in the hogshead.

The planters, dwelling in a goodly land, and their fields filled by negroes, who, in this capacity, occupied the position to which nature assigned them, and where *only* they have ever been of any service, had the means to dispense an elegant hospitality, and the leisure to store their minds with all the knowledge then accessible. Their children having the same surroundings, there grew up in Virginia a race of men noted for generosity, and for a breadth of view that fitted them to govern. They had; in short, no taste for anything akin to Puritanism. That found a home on a coast as sterile as its own soul, and to this day its representatives have shown an utter inaptitude to govern where any diversity of interests prevail. While it is true that many of the old Virginians were extravagant and improvident, which we do not pretend to palliate, it is also true that they despised the meanness and hypocrisy that would sell a negro for money, and then STEAL him away under pretence that "slavery was an ungodly business." Mr. Samuel Athawes, who was the Commission Merchant, in London, of Mr. Wm. Dangerfield, of New Kent county, Virginia, 10th March, 1768, let Mr. D's draft on him for £100, go to protest.—He writes a letter explaining the reason, and observes: "Keep a Book yourself debiting me with the Toba you Consign and giving me credit for any Bills you may draw, or any goods which may be put to you—this will be a good guide and may prevent any further

accident of this Kind.—* * My money is my Fortune and at my time of life ought to be circulating for improvement and not to be locked up in Virginia at five pr et.—* * gentlemen overvalue their incomes, and live up to their suppositions without providing against Calamities, accidents &c. * * In England, you must be sensible it is otherwise. It indeed must necessarily be so, unless a man is determined to be in a gaol.—If a man here, of a Landed Estate lives to the Extent of his Rents, what is to become of him if his Tenants run off, if his Houses want repairing, or the Land tax is raised; and if a merchant or any Trader does not lay up a Proportion of his Gain, what is to become of him if he makes a bad debt? * * I hope the present Generation will take warning and not be the means of reducing their Familys to such extremitys.

As nearly as can be ascertained, the average annual export of tobacco from the colonies, during the ten years ending in 1709, was 28,858,666 pounds, of which England consumed (average) 11,260,659 pounds, and the rest of Europe 17,598,007 lbs. In 1746, the export was 40,000,000 lbs. England consuming 7,000,000 pounds; other European countries 33,000,000 pounds. The average annual export from 1763 to 1770, both inclusive, was 66,780 hogsheads, or 67,780,000 lbs. In 1772, it was 97,799,263 pounds; in 1773, 100,472,007 pounds; in 1774, 97,397,252 pounds; and in 1775, 101,828,617 pounds. The total export of these four years was 397,497,139 pounds, of which England consumed 147,809,157 pounds; the rest of Europe 249,665,982 pounds. The total export for the seven years, from 1776 to 1782, was 86,649,533 pounds, of which the British captured 33,974,944 pounds. It is only now and then that we see, in our early records mention of the price of tobacco. In 1619 the best sold for 3s., and second 18d. In this year planters were admonished by the Council “to thoroughly and loyally aire their tobacco before they bring it to the Magazine.” In 1622 Spanish tobacco sold for 18s., while Somer’s Island and

Virginia tobacco ruled at from 2s. 6d. to 3s. The crop of 1755 failed through drought. In 1764, it was 3d. to 3½d. in London; indeed since 1648, it ruled oftener than otherwise at low figures. In 1769 at Antigua, it was held from 5d. to 6d. In 1755, 11d. to 12½d., in London. In 1780, it advanced, at the Richmond warehouses, from £30, per hogshead, in January, to £75 per hogshead in December. These were "war times," when things generally are unsettled.

In looking through the laws made for the government of the colony of Virginia, there is no subject that receives as much attention as tobacco. It not only furnished a circulating medium in the transactions between man and man; but it was the chief source of income enjoyed by the people. It was their surplus, and it was sold abroad; hence wealth increased. The planter observed a style of living seldom found in new countries; indeed, in things generally, he was at once the artificer of a new empire, and an actor of prominence in the old.

Through the kindness of Col. T. J. Massie, of Nelson county, we have had access to his family papers of old date. Among other things of interest we found the marriage portion of a young lady in those days to be generally 50,000 pounds of tobacco. His ancestor, in 1793, obligated himself to pay such a portion for account of his neighbor's daughter, on her marriage, which he did (June 4, 1794), at the rate of 20s. per cwt., the value of a "crop tobacco of good weights and late dates, passed at the upper warehouses on James or Yorke rivers."

In closing this review of tobacco in old time, it is not out of place to look at the standing of Virginia at the end of the Revolution. The owner, in her own right, of all the territory covering what is now known as Virginia, West Virginia, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin and Minnesota, east of the Mississippi river, located in the heart of the continent, with an ocean front, and the finest roadstead in the western hemisphere, on one side, and

ample outlets to it in another direction, through the Ohio and Mississippi; yea more, possessed of the men who had the ability to govern it. In fact, no matter what might be the future of the territory that became the United States, she held an absolutely controlling position. In a moment of weakness (so hard is it to govern ourselves with discretion in prosperity), like Samson, she submitted to be shorn of her power. For the sake of the Union she gave up to it her "Northwest territory," thus confirming a combination where she had nothing to gain, and everything to lose; *and she has lost*; for not content with the present to them of the bulk of her possessions, her partners have **ROBBED** her of a third of what was left. God vouchsafed her a prophet, but his warnings were in vain, and PATRICK HENRY stands to day as the monument to point forever to the fatuity of a people who believed all the world to be as honest as themselves. We, her posterity, are not proud of this act; on the contrary, have hearts loaded with bitterness that our Mother should have taken a step to entail upon her children the wretchedness that has come to their lot; that the recipients of her bounty should have been made through it so strong as to be able to heap insult upon her with impunity, and to crown their ingratitude by that damning crime, which cries to heaven, negro domination.

2.—TOBACCO SINCE THE CLOSE OF THE REVOLUTION.

We shall endeavor to show here, in a general way, the progress of tobacco since the peace of 1783. We find, in the three years from 1787 to 1789, an export from the United States, of 267,311,000 pounds, and from 1790 to 1799 inclusive, 817,937 hogsheads of leaf, and 960,744 pounds of manufactured. The following table will exhibit the export, in detail, for the year ending September 30, 1792 :

STATES.	Hogsheads.	Manufactured lbs.
New Hampshire,	3	.....
Massachusetts,	1,221	110,525
Rhode Island,	1,429	.....
Connecticut,	105	.....
New York,	1,952	1,600
New Jersey,	5	.....
Pennsylvania,	3,203	2,140
Delaware,	8	.....
Maryland,	28,992	780
Virginia,	61,203	2,025
North Carolina,	3,540	.....
South Carolina,	5,290	624
Georgia,	5,471	180
Total,	112,428	117,874

In the table following, we show, from the year 1800 to 1875, every fifth year, the number of hogsheads of leaf and pounds of manufactured exported, the average price per pound, and the money value of the leaf:

YEAR.	Number of Hogsheads.	Average price per lb.—Cts.	Value.	Manufactured, not including Snuff.—Lbs.
1800	76,686		.....	457,713
1805	71,251	7 $\frac{3}{4}$	\$6,341,000	428,460
1810	84,134	5	5,048,000	529,285
1815	85,337	8	8,235,000	1,034,045
1820	83,940	8	1,188,188	593,358
1825	75,984	6 $\frac{1}{2}$	5,287,976	1,871,368
1830	83,810	5 $\frac{1}{2}$	5,833,112	3,199,151
1835	94,353	7 $\frac{1}{4}$	8,250,577	3,817,854
1840	119,484	6 $\frac{3}{4}$	9,883,657	6,787,165
1845	147,168	4 $\frac{1}{4}$	7,469,819	5,312,971
1850	145,729	5 $\frac{5}{8}$	9,951,023	5,918,583
1855	150,213	...	14,712,468	9,624,282
1860	167,274	...	15,906,547	17,087,309
1865	149,032	...	41,625,226	7,398,293
1870	.....	11 $\frac{1}{2}$	21,100,420	.....
1875	.....	11 $\frac{1}{2}$	25,241,549	.....

NOTE.—Besides the "hogsheads," there were exported in 1855, 26,279 cases and bales; in 1860, 32,852; and in 1865, 61,616. Number of pounds not recorded in those years. In 1870 and 1875, number of packages not given; only the pounds. In 1870 there were 185,748,881 pounds, all sorts; and in 1875, 223,901,913 pounds. Of "manufactured," number of pounds are not given in 1870 and 1875; only the value. In 1870 it was \$1,582,985, and in 1875, \$2,578,279. Prices of leaf not given in 1800, 1855, 1860 and 1865.

We observe how rapidly the use of tobacco grew during the last century and how it has continued to grow. The people of Europe and Asia, however, were not content to depend for their supply entirely on the western world, but they undertook its growth themselves. Last Spring we presented very full memoranda bearing upon its production throughout the globe, and we found that it is now a regular crop in nearly every country. The consumption in this country is, taking official figures, 48 cigars, 2 9-10 pounds of chewing tobacco, and 1 1-16 pounds of smoking tobacco, *per head of population*. Tobacco is chewed only to a limited extent in other countries, but all the world are smokers. Germany, in her *per capita* consumption, ranks with the United States. As nearly as can be estimated, the total annual consumption of the world is two millions of tons.

From Virginia there went westward soon after the Revolution, many of her people. Carrying with them the knowledge of their staple crops, they naturally attempted their reproduction in the new homes they found beyond the mountains. These regions were well adapted to the growth of tobacco; and whereas Virginia, less than a century ago, produced the bulk of tobacco grown in this country, now she has a rival in Kentucky, Tennessee, Missouri, and the country north of the Ohio, not only respectable in the matter of quality, but exceedingly so in the direction of quantity. While western tobacco made good headway abroad prior to the war, it was during that struggle, when Virginia was cut off entirely from supplying her wonted customers, that it gained a foothold so firm that it is hardly probable a dislodgment will ever be effected. However, this should not discourage us. Our boundaries are contracted, to be sure, but there is space enough still left us to produce this crop in a way to command profitable customers. The West makes good tobacco, but still it has made none as good as our best, and it is doubtful if it ever will.

We have the highest English authority for the assertion that no country on the globe has yet produced a successful substitute for fine Virginia tobacco, and that is a powerful point of advantage. Besides, we are not confined to one type. We can meet the demand of Europe for the large, heavy, waxy, dark tobaccos they so much esteem; and for those in this country who chew as well as smoke, and the number is large, we make, in our fine sun-cured mahogany tobaccos, a leaf so well flavored by nature as to require but little aid to suit any taste; and then the bright yellow tobacco finds use in adorning the plug filled with darker tobacco, and for smoking. Looking at all three of the types now peculiar to this State, and it is a fact that when produced of good quality, and well handled, it will *always* command a paying price. We cannot, in tobacco, as in anything else, sacrifice quality to quantity, and expect a handsome reward.

It is our money crop, and we want no better. We refer, as is manifest, to the bulk of our area. All the country nearly west of the Rappahannock, and south of the James, is essentially a tobacco region, and some of the finest leaf marketed is made in the mountains. The position of Virginia wheat, in respect especially of the flour demand from South America, will always make that crop in the Piedmont and Valley country valuable; but, taking it all in all, tobacco remains now, as it did at the beginning, our chief reliance. We do not, of course, counsel the production anywhere *only* of this crop. Every man should endeavor to raise enough of other things to maintain his establishment, and every prudent man does. We mean that to this crop our people must look mainly for the money that is to make their wealth. We know that the "inevitable negro" will naturally be urged as an offset to this; but that very fact should render us personally the more industrious, and strengthen our resolve to be as far as possible self-sustaining. We must come to it sooner or later; will we gain

anything by delay? If a young man in Virginia has no capital to depend upon but his own energy, it is not possible for him to better his condition by going anywhere else in this country. If he moves West, every mile he goes is that much farther from the market, which is the seaboard. He will have to labor as he never dreamed of before, and be in a society with which he has nothing in common (they have ceased to think as we do), rendering his life one of mere existence without enjoyment. If he goes North, the case will be infinitely worse. If farther South, he will encounter a climate to which he is unused, and gain nothing in soils over what he left at home. But it is useless to urge what we conceive to be the proper course, without we can fortify it by example. We are happy to be able to present such an example, and these cases are not few, as we could amply attest did our limits allow. We take the following from the *Charlotte (Va) Gazette*:

SPLENDID RESULTS.—Messrs. J. S. and S. J. Adams, sons of Thomas J. Adams, the past year rented a portion of the land of Judge Wood Bouldin. They cultivated forty acres in corn, raising three hundred and sixty-five barrels, or about eighteen hundred bushels of corn; twenty-five acres in tobacco, of four thousand hills to the acre, with a production of about twenty-five thousand pounds, and of excellent quality; thirty acres were sown in oats, yielding thirty-seven good stacks; their wheat amounted to three hundred and twenty-five bushels, and was only about half a crop. After deducting the rent, expense of six hands and four horses, these young men had a little over two thousand dollars to divide between them for their year's work. Such a result shows what labor, industry, and energy will accomplish for farmer boys in Charlotte county. And labor, industry, and energy will do the same in every county in this Commonwealth!

We have, as we know, three distinct types in our tobacco product. We believe the day will come when we can, with

profit, add another. The more diversified we can make our money crop, the more certain we are of a market for all it covers. The fourth type we refer to is cigar tobacco. In a location as unpropitious as New England, this crop has been brought to great perfection. Farther south, in Lancaster county, Pennsylvania, it is produced of still better quality. And farther South still, say in Virginia and North Carolina, we are persuaded a still better result can be gotten. We hope, at some time in the future, to present to our friends the results of our inquiries in this direction, and they have been continued through a series of years. The crop is so entirely different from anything to which we are accustomed that it cannot be undertaken without full instruction; and we trust that none of our people will make the venture until this is supplied. They will certainly be disappointed.

3.—SOMETHING ABOUT THE PRESENT OUTLOOK ON THE TOBACCO QUESTION.

Last winter we ventured some observations on the probable drift of the tobacco trade in the year 1875. We showed the average consumption, both foreign and domestic, of American tobaccos, during the four years from 1871 to 1874 inclusive, and endeavored to ascertain the extent of the crop that would be marketed during the year ending 1st November last. In order not to flatter the planter, we placed the figures much higher than those of persons in the trade whose business it is to be thoroughly advised in such matters. On this basis of calculation, assuming the consumption to be the same as the average referred to of the previous four years, and there should have been on hand, throughout the world, November 1st, 1875, of Virginia and Western tobacco, 38,500 hogsheads of 1,000 pounds each.

In this forecast there were contingencies we could not ignore, but to which no definite value could then be assigned.

They were : 1, diminished consumption through high prices ; 2, the use of substitutes ; and 3, increased production in other countries under the stimulus of high prices. Wishing to be fully advised as to whether or not these contingencies operated in respect of the European demand for American tobaccos, we sought the counsel of the best authority in London, Mr. A. B. BREMNER. The response was very full and satisfactory. He showed the figures of "deliveries" in Great Britain and Bremen, and they exhibit no material falling off, as compared with previous years ; but the decline in "imports" was enormous. Speaking generally as to Europe, he says : "I am inclined to think the high prices of American have had much more effect in reducing stocks than in diminishing the consumption. In Bremen, a good criterion, as to the German consumption, can be found from the prices, which for fine leaf have been as high as equal to 12d. to 14d. here [London], a scale of figures that we never saw before, not even during your civil war. This shows plainly that high prices have not hindered the Germans from taking American tobaccos." And yet this did not authorize prudent operators laying in their usual heavy stocks on the expectation of continued good prices from the consumer, especially in view of the large crop planted last year in America. He says again : As to substitutes, so far from a large increase, it is but small in the delivery, and a very large falling off in the supply." And "except East Indian (which is almost useless here, unless it becomes greatly improved), there are no signs of any increased production in other countries." In fact, "there really seems to be no other tobacco to interfere with that of the United States. There certainly has not been this year (December 20, 1875). American tobacco has emphatically been 'king.'"

Nor, looking at the figures in the Report of the Commissioner of Internal Revenue, does there appear to have been any particular falling off in American consumption, if we are to judge by the measure of American production of

manufactured tobacco. Quoting from the *Annual Tobacco Review*, January 1, 1876, of MESSRS. J. S. GANS & SON, New York, whose opinions have weight in the trade: There is, according to all probability, a season of great activity before us, for not only the Regies of France, Italy and Spain will be in the market, but also Great Britain, Germany, &c., will be desirous to replenish, whilst the home demand will be at least equal to that of former years. As for prices, we do not look for extremes either way; the quantity is not large enough to cause an unproportionate decline in values, and yet it is too large to sustain high ratings. To the planter we would say, you have raised last year a crop of tobacco not too large, but yet sufficient to supply all likely demands. Do not expect to sell at extravagant rates; the tendency of the times is for moderate prices."

The rains last Summer, continuing for so many weeks, had the effect to make the tobacco, throughout the country generally, very leafy, but with little substance. Hence, the proportion of really first-class tobacco, in the crop being marketed this year, is far from large. In observing the tendency of the trade, we find quite a demand is setting in from Europe for our "sun-cured" and "fancy brights," besides the usual call for what good "heavy shipping" we have to offer. Germany is taking, with reasonable freedom, sun-cured "lugs" and England a great deal of "bright yellow" leaf. These are both of such superior flavor, as compared with what was required by old-time tastes "across the water," that we are persuaded the demand will be regular hereafter for them. Taking a general view of the situation, and no product for sale in this country has the same promise of remunerative returns this year as tobacco. Nor is there anything to justify the opinion that there should not be planted a full crop this spring. It is an article of universal consumption; and the times must be hard indeed, throughout the world, if the demand will not consume what is produced. It has done it heretofore, and there is nothing

to indicate a radical change now, in this respect, in the habit or intention of mankind.

When we consider the efforts being made in Kentucky, Tennessee and Missouri, to produce an article equal to that of Virginia and North Carolina, we cannot flag in our resolution to bring ours "fully up to the standard." We must not allow our strong fortress to be taken; so what we plant this Spring, let it be cultivated and manured so thoroughly as to command its just due, the "very top of the market." We speak, of course, to white men. Since the negroes have been freed, too many of them refuse to work as laborers, but desire to take land "on shares." This has had, and will continue to have, the effect of throwing on the market innumerable small crops, and nothing but the most careful and faithful assortment by warehousemen will keep the general range on a basis of reasonable uniformity. Without this is done, the market is bound to be demoralized.

We cannot close this sketch without referring to what North Carolina has done, not only for her own people, but for the southern counties of Virginia. To her we are indebted for "*bright yellow tobacco*." Capt. ABISHAI SLADE, of Caswell county, produced it first, and it was in the year 1856. When we see that the sales of this tobacco, at Danville, Reidsville, Winston, Milton and Durham, now reach millions of dollars every year, we can understand the obligation we owe to Capt. Slade, and the place his memory should hold in the gratitude of our people. While all the upper and western counties of North Carolina are fitted to produce this type in great perfection, it is doubtful if the world anywhere can show anything equal to what is now grown regularly in Granville and Caswell. Virginia and North Carolina form a section by themselves. The interests of both are identical; and we trust that each year will bind them closer together in those ties of brotherhood that should characterize men who stood shoulder to shoulder in a struggle, by the side of which the Revolution was as "child's play."

CHAPTER XIX.

PHYSIOLOGICAL AND MEDICINAL ACTION OF TOBACCO.

The effect of tobacco upon the human constitution is a subject that has been freely discussed by scientific men of every country. "Is tobacco injurious" is a query which medical men are often called upon to meet. So general and diversified is its use, and so enormous its consumption in every class of society, and among the people of all nations, that the consideration of its baneful or non-deleterious effects, claims in this work some notice pertaining to the subject. I will therefore bring this matter before my readers in my last chapter, telling them of the action of tobacco physiologically, and the medicinal uses in which the plant may be administered with benefit. No article of luxury is more sought after, more generally used or causes more discomfort, if indeed not actual suffering, when the habitual user of it cannot procure the weed. Physicians may denounce it, writers issue page after page upon its baneful qualities, men and women proclaim against it, and even the pulpit pour a flood of eloquence, denunciatory of the devil's weed, threatening anathemas upon its users, but all to no purpose, except perhaps to increase its consumption by drawing attention and securing new consumers of it. It seems to supply some needed want, hence men will have it.

I do not advocate the use of the weed either as a blessing or believe it a curse. I do not proclaim it a benefit to humanity as an article of consumption, but I mean to inquire into its properties and virtues, and see if I cannot discover and give to my readers some of the causes and reasons why this noxious Indian weed is penetrating to every nook and corner of the world.

TOBACCO AS A MEDICINE.

"*Tabacum*" or Tobacco is known in German as "*Tabakblatter*," in Spanish as "*Tabaco*," and in French as "*Tabac*." The genus: "*Nicotiana Tabacum*."

Tobacco as a medicine is used in various forms. It is classed among remedial agents as emetic, narcotic and cathartic, or laxative. We have infusion of tobacco, that is, leaves of the plant steeped in water. This is generally used as an injection, in certain affections of the bowels, such as Intussusception, Hernia, and Painters' Colic. Then there are: the Oil of Tobacco, Ointment of Tobacco and Wine of Tobacco. Tobacco is also a relaxant and antispasmodic, that is it possesses the quality of relaxing a patient and allaying spasm. It is also a poison, and a very violent one. Its antagonists and antidotes are Tannic Acid, Caustic Alkalies, and the Iodides. A person has been poisoned by an over-dose of tobacco in one of its forms. What is to be done? First he has convulsions, then lies in a cold, death-like and semi-paralyzed condition. Give him a prompt emetic, or use the stomach pump to evacuate the contents of the stomach. The action of his heart is very feeble, also the lungs. Produce artificial respiration and give him stimulants, brandy and ammonia. The physician may also inject strychnia under his skin. Ointment of tobacco is used when local application is demanded, as for instance in some forms of skin diseases. Any administration of tobacco, however, be it internally or locally, must be with great care or fatal consequence may follow. Wine of tobacco is administered most generally, it being rather a favorite preparation with those who have cause to use it. Severe cases of asthma have been relieved most signally by its use in very small doses, a few drops given at intervals. This malady is also frequently treated by the fumes of burning tobacco, hence sufferers from it often resort to cigars for relief, cigars made for the purpose, the leaves of which have been steeped in Nitrate of Potash water, and combined with the leaves of *Hyoseyamus* or *Grindelia Robusta*. Four or five drops of the wine of tobacco administered every night, on a lump of sugar, will very often cure the most obstinate cases of constipation. Tetanus or locked-

jaw is often treated with tobacco. The wine of tobacco given internally, and light cataplasms or tobacco poultices applied, will sometimes act well and reduce the muscular rigidity. Sometimes injections of the infusion are used. The preparations of the plant mentioned, are all valuable remedies in this terrible and most fatal malady. By it the spasms are suspended, the jaws unlocked and food allowed to be taken. Care must be exercised to watch the effect of each dose, or you will accomplish that which you are laboring to avert, the death of the patient.

Tobacco also has an action on the skin and kidneys, hence it is sometimes used in dropsical affections, but it is so disagreeable in its effects that few patients will continue its use, after having had a dose or two, sometimes acting two or three ways at one time.

1.—PHYSIOLOGICAL ACTION.

I have said that tobacco, in the main, has two actions. emetic and narcotic. It is upon this latter narcotic principle on which are founded all the enchanting pleasures, and great allurements of its use. This is why 'tis sought for by the millions. This is why the poor man will forego food and suffer much privation to procure it, and why the man of great wealth will hesitate at no expense, however great, in order to secure the finest brand the world produces. This is what is extending its use, and finding for it consumers in every part of the habitable globe. From its narcotic properties proceed all its charms. Like opium it calms the agitations of our corporeal frame, and soothes the anxieties and distresses of the mind. Like music it soothes the agitations, and allays the passions of men.

It was some time after the use of tobacco as snuff in Europe that the smoking of it began. It soon became immensely popular, and it was not long until the herb was prohibited in certain localities. Physicians declared it

hurtful to health, and the priests denounced its use as a sin. Pope Urban viii. issued a bull excommunicating all persons found taking snuff whilst in church. Sultan Amurath made smoking a capital offense; whilst the penalty paid for smoking in Russia was to have the nose cut off. The strenuous way in which it was opposed by James I. of England is a curious matter of history: Without the consent of his parliament he raised the duty on the weed from 2d to 6s. 10d per pound, and his famous counterblasts to tobacco declared smoking "loathsome to the eye, hurtful to the nose, harmful to the brain, dangerous to the lungs, and in the black stinking fume thereof, nearest resembling the horrible stygian smoke of the pit that is bottomless." But Kingly and Priestly wrath were futile against the far and wide extension of the use of the herb, and at the present day it has become perhaps the most generally diffused luxury in existence; for according to statistics, the average consumption of tobacco by the whole human race of one thousand millions, is seventy ounces a head per annum. And yet this enormous consumption of the article is ever on the increase. There is no retrograding, no lessening of the amount consumed, be the prices high or low. Taxation is no bar. Preventive legal enactments have no effect, men will smoke, men will chew.

This general and wonderful consumption of the article leads us to discuss the question as to whether or not its use is deleterious to the human constitution.

IS TOBACCO INJURIOUS.

This question is frequently asked, and has often been the subject of essays. That its excessive use is injurious to the majority of persons, there can be little doubt. That even used in moderation, it still has a baneful effect upon many constitutions.

Tobacco is used as a luxury because of its narcotic or

sedative effect. Many men poison themselves, by continued excessive use. Tobacco has a powerful effect upon the action of the heart. Some persons are decidedly benefited by smoking a cigar, when laboring under any excitement, the sedative effect of the weed allaying arterial force and consequent brain excitement. Others are benefited by a smoke immediately after a full meal, claiming that the sense of fullness and heaviness passes away by the influence of the weed. Others again claim that "a smoke" is an aid to digestion, and that it promotes a laxative condition of the bowels, relieving constipation, &c. In this latter action it undoubtedly is effective, inasmuch as it is a powerful relaxant, and in this way exerts a beneficial influence upon the bowels. As a promoter of digestion I am rather inclined to doubt. It undoubtedly favors a more free flow of gastric juice, but it is more likely that a greater number of persons are injured in their digestive organs, than benefited by the use of tobacco. Many and numberless are the cases of "smokers sore throat, smokers sore noses and sore eyes." Innumerable are the cases of indigestion attributed, and no doubt justly, to the use of too much plug tobacco, and too many cigars. Chewers expectorate saliva which should be retained to lubricate the mouth, throat and other digestive organs, and which is useful as an assistant in the proper digestion of the food. Many chewers and smokers complain to their medical advisers that they have dry, husky and inflamed throats. These arise from a deficiency of saliva, the lack of which is brought about by inveterate chewing or smoking. Another class of sufferers are those whose nerves are affected. This is a very large class, and physicians are continually called upon by habitual users of the weed, to prescribe for pain in the head, vertigo, nervousness and pain, and palpitation of the heart. Indeed so common has the heart complaint become, that it is now known by the general name of "tobacco heart." To all such persons I would most emphatically say, tobacco is in-

jurious, tobacco will render your life miserable and shorten your days.

It has often been asserted by the advocates of temperance that the use of tobacco prepares the way and leads to the use of alcoholic stimulants. This to a certain extent may be true, but on the other hand it is claimed that as men will use a stimulus in some shape multitudes content themselves with tobacco, who otherwise would betake themselves to "drink." From its stimulant narcotic effects it seems to answer a purpose with the millions who would otherwise seek solace and comfort in alcohol and opium. This being the case it yet remains an open question as to whether the use of tobacco is beneficial or a curse; for the public weal or the public woe.

To My Cigar.

“ Yes, social friend, I love thee well,
In learned doctors spite :
Thy clouds all other clouds dispel,
And lap me in delight.

What though they tell, with phizzes long,
My years are sooner passed ?
I would reply, with reason strong,
They're sweeter while they last.

And oft, mild friend, to me thou art
A monitor, though still ;
Thou speak'st a lesson to my heart,
Beyond the preacher's skill.

Thou'rt like the man of worth, who gives
To goodness every day,
The odour of whose virtues lives
When he has passed away.

When in the lonely evening hour,
Attended but by thee,
O'er history's varied page I pore,
Man's fate in thine I see.

Oft as thy snowy column grows,
Then breaks and falls away,
I trace how mighty realms thus rose,
Thus tumbled to decay.

Awhile, like thee, earth's masters burn,
And smoke and fume around,
And then, like thee, to ashes turn,
And mingle with the ground.

Life's but a leaf, adroitly roll'd,
And time's the wasting breath,
That late or early, we behold,
Gives all to dusty death.

From beggar's frieze to monarch's robe
One common doom is pass'd :
Sweet nature's works, the swelling globe,
Must all burn out at last.

And what is he who smokes thee now ?—
A little moving heap,
That soon like thee to fate must bow,
With thee in dust must sleep.

But though thy ashes downward go,
Thy essence rolls on high ;
Thus, when my body must lie low,
My soul shall cleave the sky."

“Smoking Spiritualized.”

This Indian weed, now withered quite
Though green at noon, cut down at night,
 Shows thy decay—
 All flesh is hay :
Thus think, and smoke tobacco.

The pipe so lily-like and weak,
Does thus thy mortal state bespeak ;
 Thou art e'en such—
 Gone with a touch :
Thus think, and smoke tobacco.

And when the smoke ascends on high,
And thou behold'st the vanity
 Of worldly stuff—
 Gone with a puff :
Thus think, and smoke tobacco.

And when the pipe grows foul within,
Think on thy soul defiled with sin ;
 For then the fire
 It does require :
Thus think, and smoke tobacco.

And seest the ashes cast away,
Then to thyself thou mayest say
 That to the dust
 Return thou must :
Thus think, and smoke tobacco.

PART SECOND.

Was this small plant for thee cut down?
So was the plant of great renown,
 Which mercy sends
 For nobler ends :
Thus think, and smoke tobacco.

Doth juice medicinal proceed
From such a naughty foreign weed ?
 Then what's the power
 Of Jesse's flower ?
Thus think, and smoke tobacco.

The promise, like the pipe, inlays,
And by the mouth of faith conveys,
 What virtue flows
 From Sharon's rose :
Thus think, and smoke tobacco.

In vain the unlighted pipe you blow,
Your pains in outward means are so,
 'Till heavenly fire
 Your heart inspire :
Thus think, and smoke tobacco.

The smoke like burning incense towers ;
So should a praying heart of yours
 With ardent cries
 Surmount the skies :
Thus think, and smoke tobacco.

ERRATA.

On page 19, twenty-eighth line, for "consumed" read cultivated.

On page 111, twenty-first line, for "\$5.00" read \$500.00.

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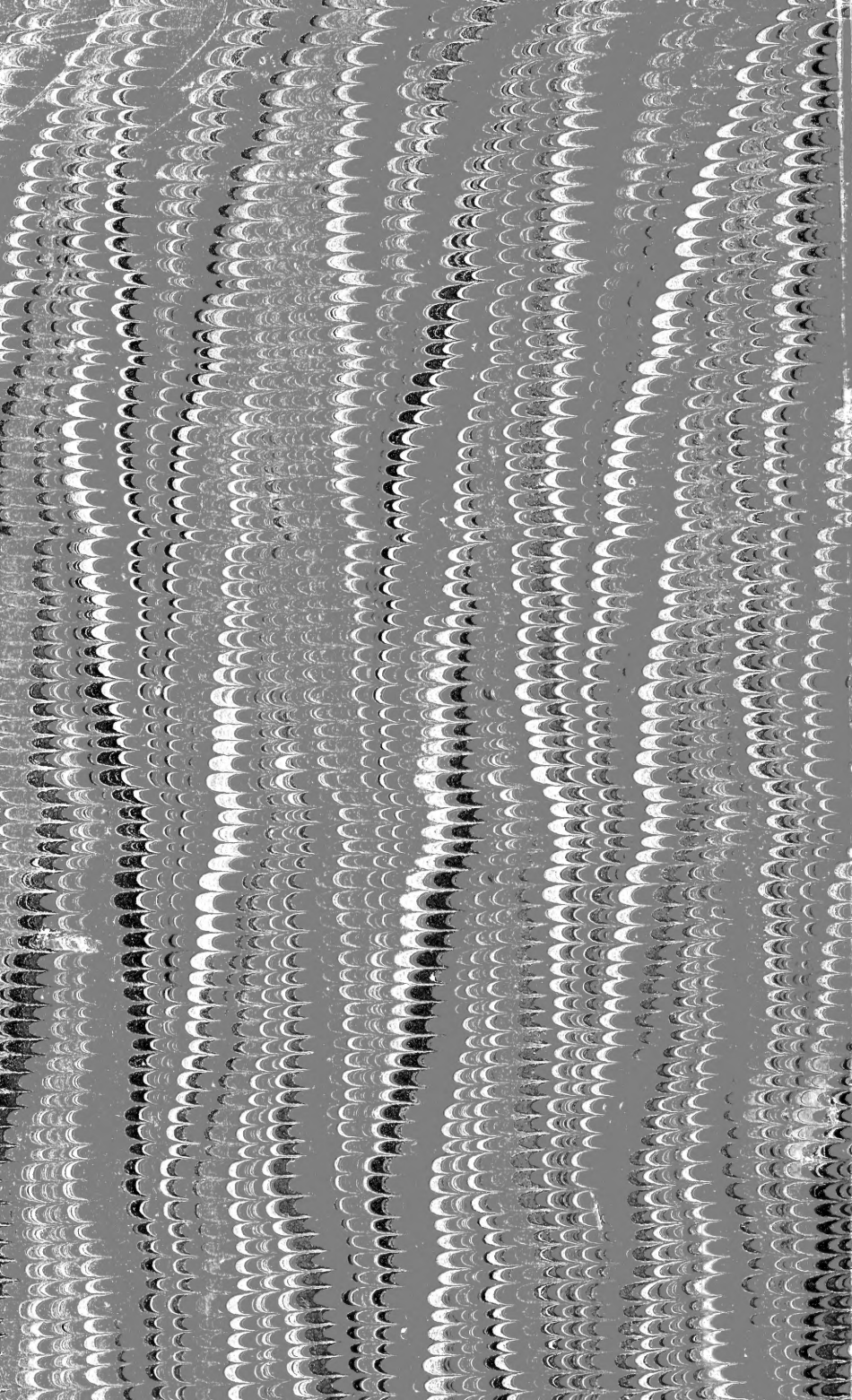
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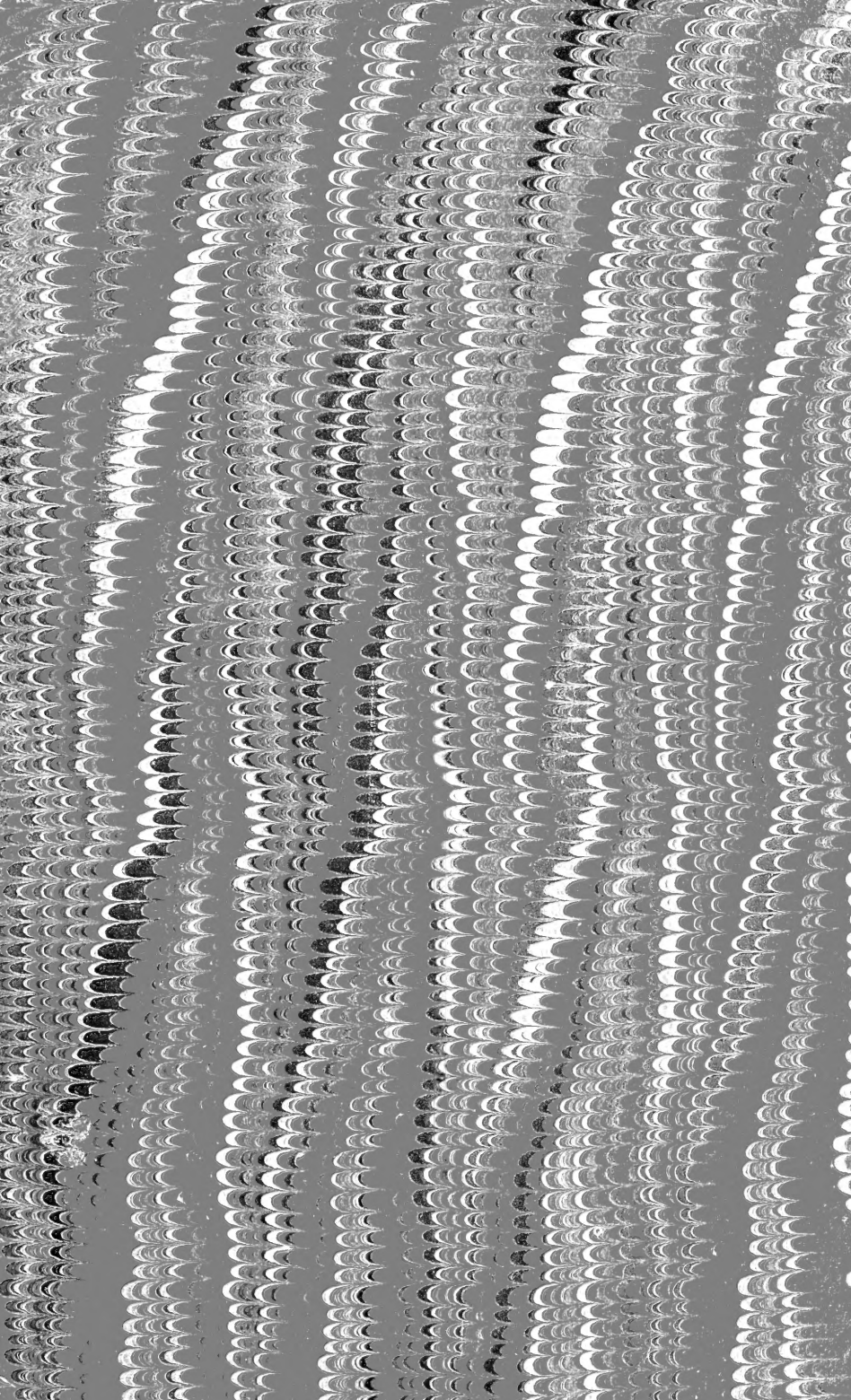
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